Construction Methods
JUNE, 1948
A McGRAW-HILL PUBLICATION
Tricks
in laying
GLASS
BLOCK

The Reinforcing Bar that is Making Our Building Codes OBSOLETE!

Feel the grip of the Hi-Bond reinforcing bar. These deep, reversed double helical ribs mean greater mechanical grip . . . higher bonding strength. And this simple bar is already beginning to cause the revision of our current building codes!

Present building codes say that hooks must be used to anchor reinforcing bars. But, engineering tests have proved that with Hi-Bond's bonding strength, such hooks are unnecessary. The straight bar, itself, is firmly anchored.

Furthermore, with ordinary bars, the low bonding strength of the bar has always been the weak link in the structure—the bar would slip before the steel or concrete could be fully loaded. With its great bonding strength, Hi-Bond bars make it possible not only to use more of the potential strength of the steel, but also to take advantage of the higher compressive strength of present-day concrete. By making possible more economical and more efficient structures using less steel and less concrete—Hi-Bond is bringing about radical revisions in our present building codes—to the benefit of both builder and general public.

INLAND STEEL

Unfortunately, the present demand for Hi-Bond greatly exceeds the supply. To make larger tonnages available to you, we have licensed other steel companies to make this superior bar. INLAND STEEL CO., 38 S. Dearborn St., Chicago. Offices: Davenport, Detroit, Indianapolis, Kansas City, Milwaukee, New York, St. Louis, and St. Paul.

Write for Booklet

INLAND HI-BOND

Concrete Reinforcing Bars

TECHNOLOGY DEPART

R. F. BOGER, *Publisher*

Construction Methods

WALDO G. BOWMAN, *Editor*

THE CONSTRUCTION MAGAZINE WITH PICTURE POWER

Established 1919

PUBLIC LIBRARY
JUN 15 1948
DETROIT

HAROLD W. RICHARDSON *Executive Editor* — **ROBERT K. TOMLIN,** *Managing Editor*

New York: **Nelle Fitzgerald** — *Chicago:* **Henry T. Perez** — *Cleveland:* **J. Roland Carr**

San Francisco: **N. A. Bowers · L. L. Wise** — *Washington:* **Vincent B. Smith**

Foreign News Bureaus: **London · Paris · Berlin · Prague · Moscow · Shanghai · Bombay · Mexico City**

Volume 30 **JUNE 1948** Number 6

CUTS AND FILLS

ALL ROADS lead to the Road Show at Soldier Field, Chicago, July 16-24. New machines, new models and improved lines will cover 1¼ million sq.ft. in the greatest exhibit of construction equipment ever shown. The Show will be open daily from 10 a.m. to 7 p.m. (central daylight time). Each day's program on the grounds will honor some special group or organization, and the A.R.B.A. 45th Annual Convention will be held concurrently at the Stevens Hotel. No construction man, if he is to keep up with the latest in equipment, materials, tools and accessories, can afford to miss this giant spectacle.

AS PART of its program in construction education, the A.R.B.A. Education Division will conduct a 4-day equipment seminar for students and educators at the Show, starting Monday, July 19. Morning sessions, to be held at the Stevens Hotel from 9:30 to noon, will cover one particular class of equipment each day through lectures and films. The afternoon sessions will be a tour of the exhibits to inspect and study the equipment items covered in the corresponding morning session. All interested are cordially invited.

IN HOPES of sparing other contractors similar trouble, Winston Bros., Inc., Minneapolis, reports to us a peculiar and tragic accident. On a rock cut under a high tension transmission line on a California road job, drill holes were being sprung with a light charge of powder. Dust from a shot rose up into the wires, and an electric arc flash followed the dust back to the ground, so severely burning the shot firer, standing only 15 ft. away from the hole, that he died later. Two helpers on the windward side of the shot, clear of the dust, were unharmed. Southern California Edison Co. engineers, who witnessed the freak accident, attribute the flash to a short circuit through the dust cloud. Winston Bros. now require all workmen to stand well clear of shots fired near high tension lines, a sound precaution.

JAPANESE CONTRACTORS are organizing an association "along democratic lines" patterned after the Associated General Contractors of America. Using the A.G.C. constitution and code of ethics, Maj. Gen. Hugh Casey, Gen. MacArthur's chief engineer, has directed the formation of the Associated General Contractors of Japan, Inc. May they be as successful as their American namesake.

IN THIS ISSUE

TOWER EXCAVATOR on flood control		85
CLEAN-CUT BRACING for subway job		86
CITED FOR SERVICE	Arthur L. Atherton	91
TRICKS in laying glass block		92
BRITISH build walls with spray gun		94
RAIL-MOUNTED GANG DRILL breaks pavement		95
DRY-BLOCK WALL PANELS shot with Jet-Crete		96
SPECIAL EQUIPMENT sets precast roof slabs		98
SEPARATE RIG handles jet hose		101
PIPE PILES cleaned out by jetting		104
PUSH PLATES on earthmoving operations		106
GAS LINES pulled across river		108
TRAMWAYS serve hydro tunnels		112

JOB JESTER	4	CONSTRUCTION DETAILS	110
NEWS REEL	102	PERSONALITIES	116
TRACTOR CONN	107	JOB ODDITIES	118

McGRAW-HILL PUBLISHING COMPANY, INC. • 330 WEST 42nd STREET, NEW YORK 18, N. Y.

JAMES H. McGRAW, *Founder (1860-1948)*

Editorial and Publishing Offices: 330 West 42nd St., New York (18); District Managers and Branch Offices: Fred G. Hudson, H. L. Keeler and L. H. Hunt, 520 N. Michigan Ave., Chicago 11; 738-30 Oliver Building, Pittsburgh; J. W. Otterson, 68 Post St., San Francisco 4; Aldwych House, London, W. C. 2, England; Washington: J. M. Spackman, New York; A. B. Cozzens, Philadelphia; E. E. Duff, Jr., Cleveland; B. F. Horn, Detroit; W. E. Donnell, St. Louis; Carl W. Dysinger, Los Angeles; W. G. Payne, Boston; Ralph Maultsby, Atlanta, Ga.

James H. McGraw, Jr., President; **Curtis W. McGraw**, Vice-President and Treasurer; **Eugene Duffield**, Executive Assistant for Publications; **Nelson Bond**, Director of Advertising; **Joseph A. Gerardi**, Secretary; **J. E. Blackburn, Jr.**, Director of Circulation.

CONSTRUCTION METHODS, June 1948. Volume 30 Number 6. Published Monthly, price 25c a copy.

Return Postage Guaranteed. Allow at least ten days for change of address. All communications about subscriptions should be addressed to the Director of Circulation, 330 West 42nd Street, New York (18), N. Y.

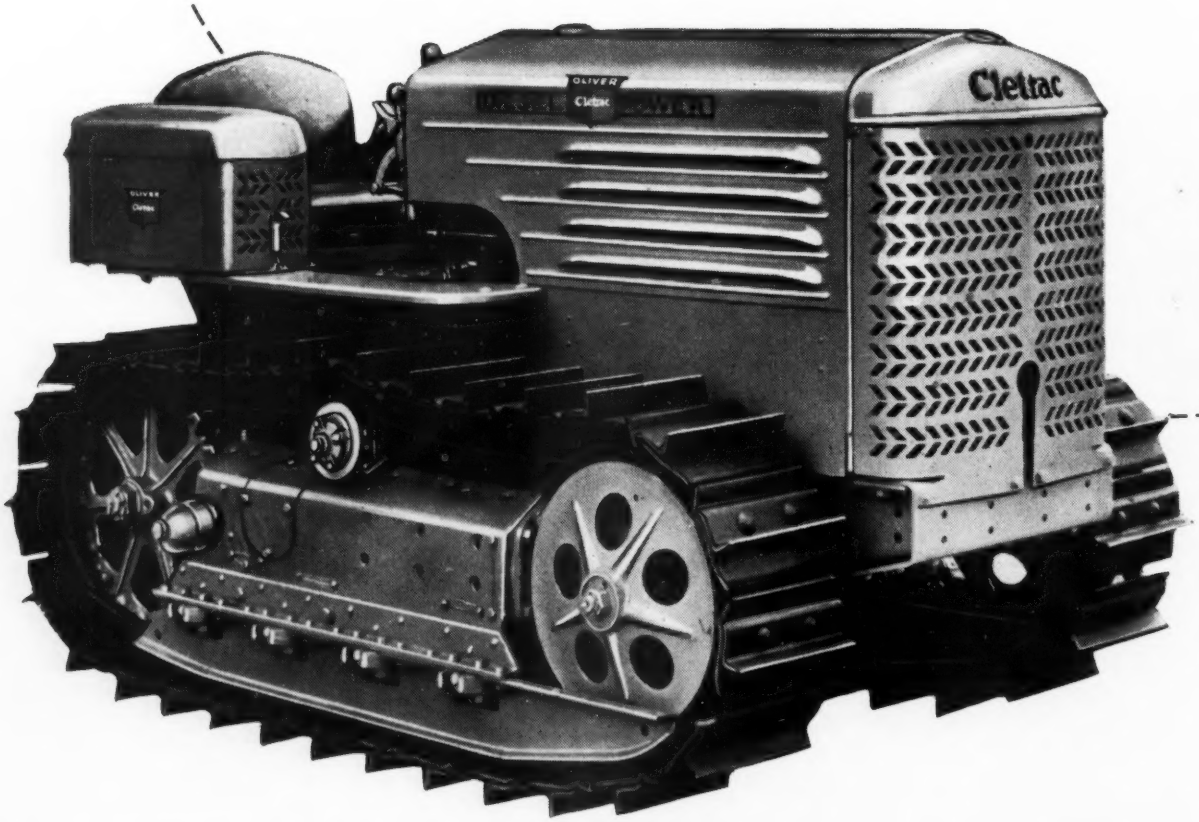
Subscription rates—United States and possessions, $2.00 a year $3.00 for two years, $4.00 for three years. Canada, $3.00 a year, $5.00 for two years, $6.00 for three years. Pan American countries, $6.00 for one year, $10.00 for two years, $12.00 for three years. All other countries, $15.00 a year, $30.00 for three years. Please indicate position and company connection on all subscription orders. Entered (or reentered) as second class matter December 16, 1936, at the Post Office of New York, N. Y., U. S. A., under the act of March 3rd, 1879. Printed in U. S. A. Cable address: "McGrawhill, New York." Member of A.B.P. Member of A.B.C. Contents copyrighted 1948 by McGraw-Hill Publishing Co., Inc., 330 W. 42nd St., New York (18) N. Y. All rights reserved.

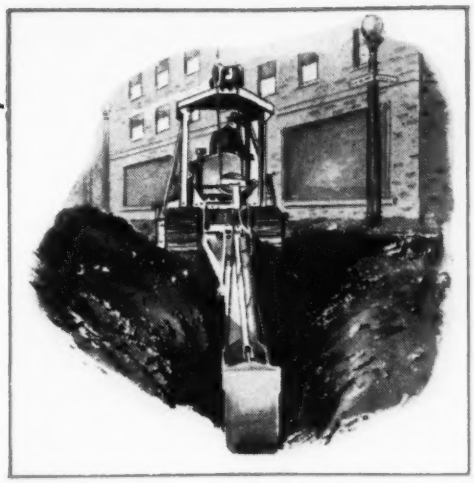
ditchdigger

backfiller

loader

in 1 package





Here's the right combination for economical ditching . . . an Oliver "Cletrac" track tractor, a Sargent Overhead Shovel, Backhoe and Bulldozer. The Backhoe digs the trench . . . from 3½ to 6½ feet deep . . . the Overhead Shovel lays the pipe and loads the excess earth and the Bulldozer backfills the ditch and compacts the fill. And powered by an Oliver "Cletrac," it's a package of rugged machinery that not only cuts your equipment costs but simplifies your jobs.

Converting the unit from Backhoe to Overhead is simplicity itself. Boom and bucket can be attached in an hour and detached in 10 minutes. Shovel arms and buckets can be attached and detached equally fast.

When you're not ditch-digging, this unit can be used to load sand, gravel, stone, debris or snow.

For all the facts, see your Oliver "Cletrac" dealer or write The OLIVER Corporation, Industrial Division, 19300 Euclid Avenue, Cleveland 17, Ohio.

"THE SIGN OF EXTRA SERVICE"

OLIVER Cletrac SALES SERVICE

Cletrac

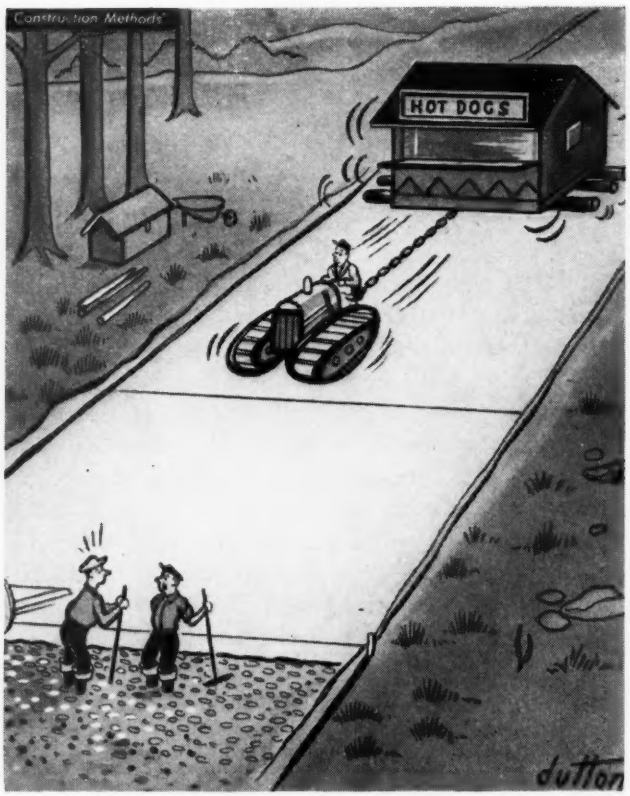
a product of

The OLIVER Corporation

THE JOB JESTER

CARTOONS DRAWN FOR CONSTRUCTION METHODS

"It beats all how that overtime adds up."



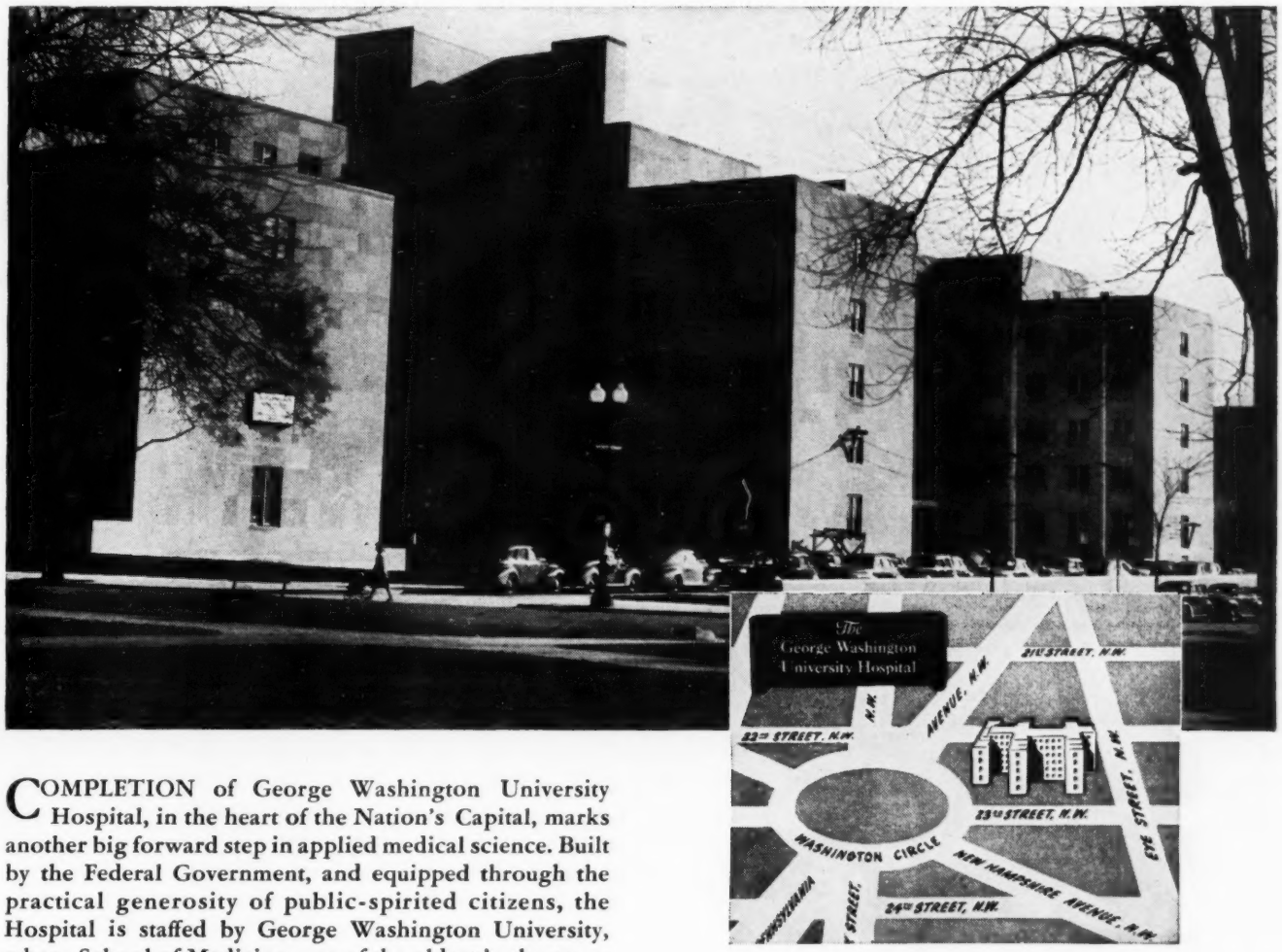
"Impatient, aren't they? They've bought some lots just over the next hill."

"Can you use him Boss? His reference says 'This man doesn't know his own strength—or anything else'."

"Wait, I haven't let go yet!"

'Incor' Cuts Form Costs $8,000.

ON GEORGE WASHINGTON UNIVERSITY HOSPITAL



COMPLETION of George Washington University Hospital, in the heart of the Nation's Capital, marks another big forward step in applied medical science. Built by the Federal Government, and equipped through the practical generosity of public-spirited citizens, the Hospital is staffed by George Washington University, whose School of Medicine, one of the oldest in the country, has earned nationwide recognition for its professional standards. The new Hospital is the first unit in the projected George Washington University Medical Center.

Six stories in height, it is 400 x 185 ft. at wing projections, with 240,000 sq. ft. of floor space. The building frame is reinforced concrete, with wall construction of Indiana Limestone backed up with brick. In concreting frame and floor slabs, **Chas. H. Tompkins Co.**, General Contractor, used 'INCOR' 24-HOUR CEMENT throughout. *Dependable 'Incor' high early strength resulted in economical job speed with only one set of forms — saving an extra form-set worth $8000.* At today's form material and labor costs, 'Incor' savings are greater than ever. Figure your next job with 'Incor'* — save time AND money!

*Reg. U. S. Pat. Off.

LONE STAR CEMENT CORPORATION
LONE STAR PORTLAND CEMENT
'INCOR' HIGH EARLY STRENGTH PORTLAND CEMENT
"INCOR"
LONE STAR AIR-ENTRAINING PORTLAND CEMENT
LONE STAR MASONRY CEMENT

GEORGE WASHINGTON UNIVERSITY HOSPITAL
CHAS. H. TOMPKINS CO., General Contractor
FAULKNER, KINGSBURY & STENHOUSE, Architects
Ready-Mixed 'Incor' Concrete from
MALONEY CONCRETE COMPANY
— all of Washington, D. C.

LONE STAR CEMENT CORPORATION

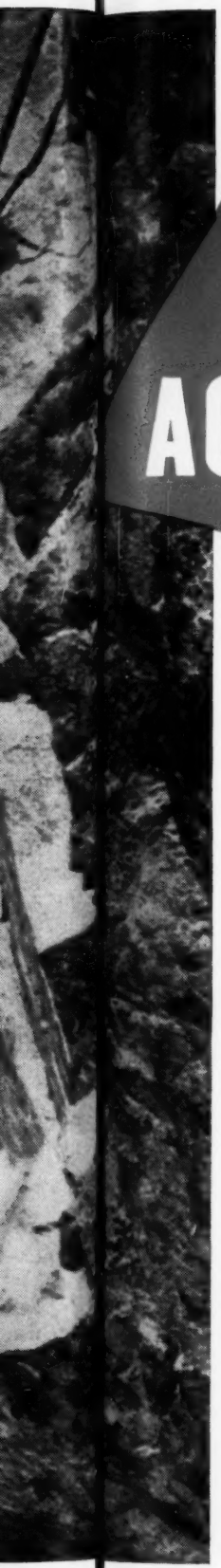
Offices: ALBANY • BETHLEHEM, PA. • BIRMINGHAM • BOSTON • CHICAGO • DALLAS • HOUSTON • INDIANAPOLIS • JACKSON, MISS. KANSAS CITY, MO. • NEW ORLEANS • NEW YORK • NORFOLK • PHILADELPHIA • ST. LOUIS • WASHINGTON, D. C.

LONE STAR CEMENT, WITH ITS SUBSIDIARIES, IS ONE OF THE WORLD'S LARGEST CEMENT PRODUCERS: 15 MODERN MILLS, 27,000,000 BARRELS ANNUAL CAPACITY

Tune in . . .
TEXACO STAR THEATRE
every Wednesday night
featuring Gordon MacRae
and
Evelyn Knight . . .
ABC Network.

TEXACO

TEXACO



PROTECT YOUR DRILLS AGAINST RUST AND WEAR

Texaco Rock Drill Lubricants EP help you drill more footage at lower cost.

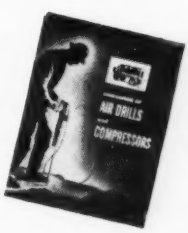
TEXACO *Rock Drill Lubricants EP* are "extreme pressure" lubricants, made to protect moving parts under the most severe conditions . . . and to prevent the formation of rust whether your drills are running or idle.

For added protection, *Texaco Rock Drill Lubricants EP* are made to stay fluid at low temperatures . . . to resist washoff . . . to keep parts free of gum and carbon formations. Drill doctors everywhere say they're the best assurance of trouble-free operation, longer drill life, lower maintenance costs.

Texaco Rock Drill Lubricants EP meet the specifications of leading rock drill manufacturers. Use the viscosities recommended for your particular drills and operating conditions.

To assure efficient compressor operation . . . to keep valves clean, rings free and air lines clear . . . use the recommended *Texaco Cetus, Alcaid or Algol Oil.*

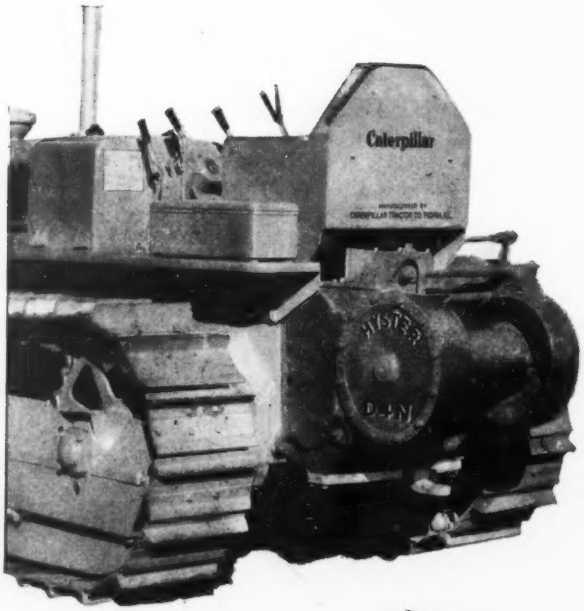
A Texaco Lubrication Engineer will gladly advise you. Just call the nearest of the more than 2500 Texaco Wholesale Distributing Plants in the 48 States, or write The Texas Company, 135 E. 42nd St., New York 17, N. Y.



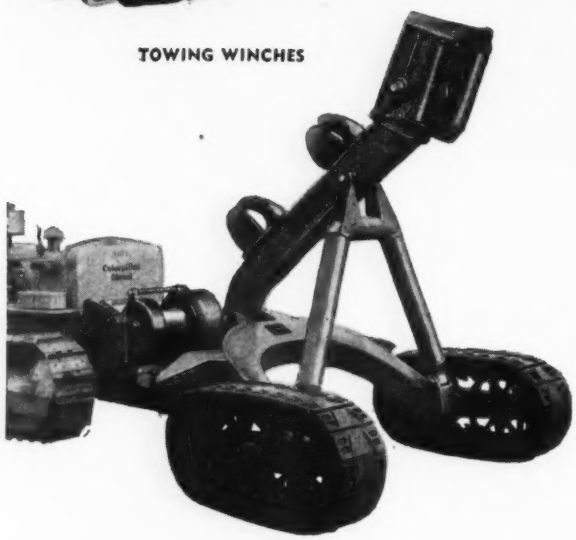
NEW! "Lubrication of Air Drills and Compressors" — a profusely illustrated, 32-page book describing in great detail the lubrication requirements of air compressors and air drills. Send for your free copy today.

Lubricants and Fuels

FOR ALL CONTRACTORS' EQUIPMENT



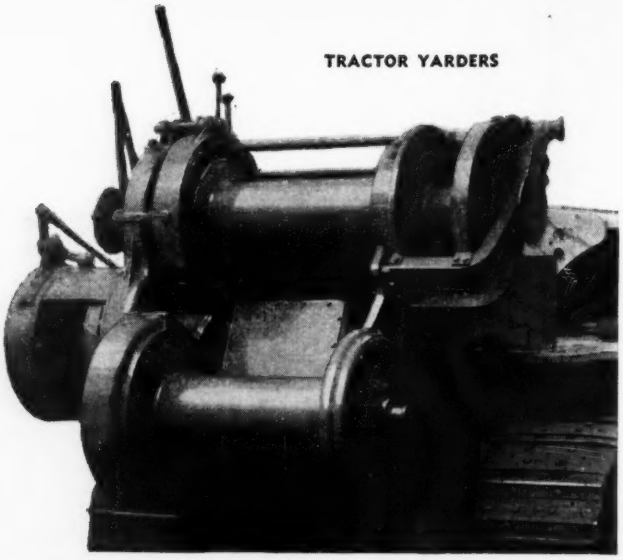
TOWING WINCHES



LOGGING ARCHES and SULKIES

HYSTAWAY

TRACTOR YARDERS



29 Tractor Tools for greater work production

For almost 20 years Hyster has been making a full line of equipment for use with "Caterpillar" track-type tractors

The current line of 29 tractor tools includes towing winches, yarders, donkeys, cranes, logging arches, sulkies and the Hystaway—the revolutionary tractor tool that combines clamshell, dragline, crane and bulldozer; all tractor mounted.

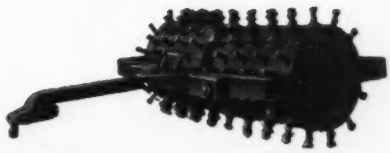
Your "Caterpillar" distributor sells and services Hyster tractor equipment. See him for information. Write for catalogs.

HYSTER COMPANY

2921 N. E. CLACKAMAS ST., PORTLAND 8, OREGON
1821 NORTH ADAMS STREET, PEORIA 1, ILLINOIS

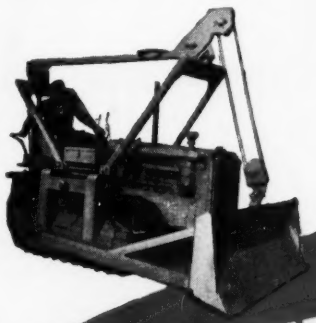
BULLDOZERS & TRAILBUILDERS

LOADERS



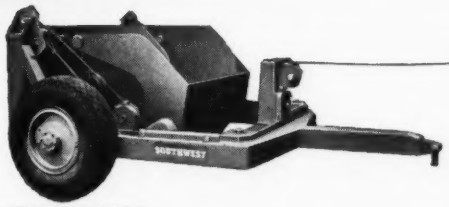
RIPPERS

TAMPERS



SOUTHWEST Construction Equipment *for every job!*

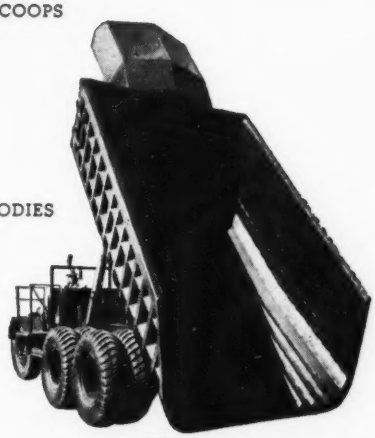
POWER CONTROL UNITS



HAULING SCOOPS

Southwest's complete, standardized line affords construction men an opportunity to fill their needs from one dependable source. From start to finish, no matter whether Allis-Chalmers, Caterpillar, International or Cletrac tractors are used, an economical Southwest unit is available to bring you increased profits.

In addition to the standard line, special Southwest Dump Wagons, Tampers, Heavy Duty Compaction Units, etc., are giving outstanding performance on out-of-the-ordinary jobs all over the country . . . Why not let Southwest help solve YOUR problems?



DUMP BODIES

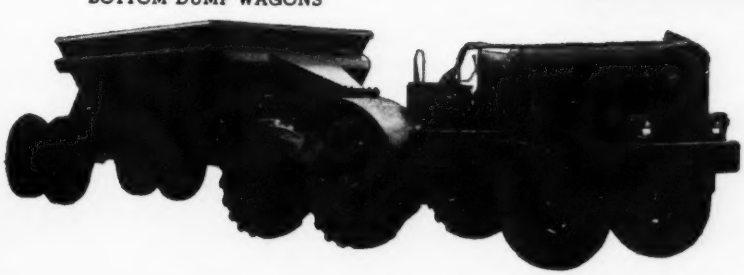
FOUR WHEEL SCRAPERS

CONSTRUCTION MACHINERY DIVISION

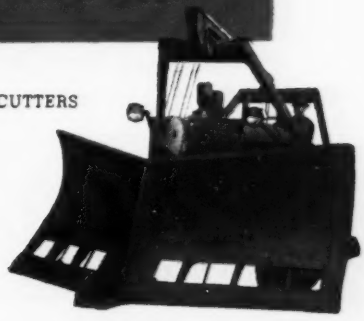
Southwest Welding & Manufacturing Company

ALHAMBRA, CALIFORNIA

BOTTOM DUMP WAGONS



BRUSHCUTTERS

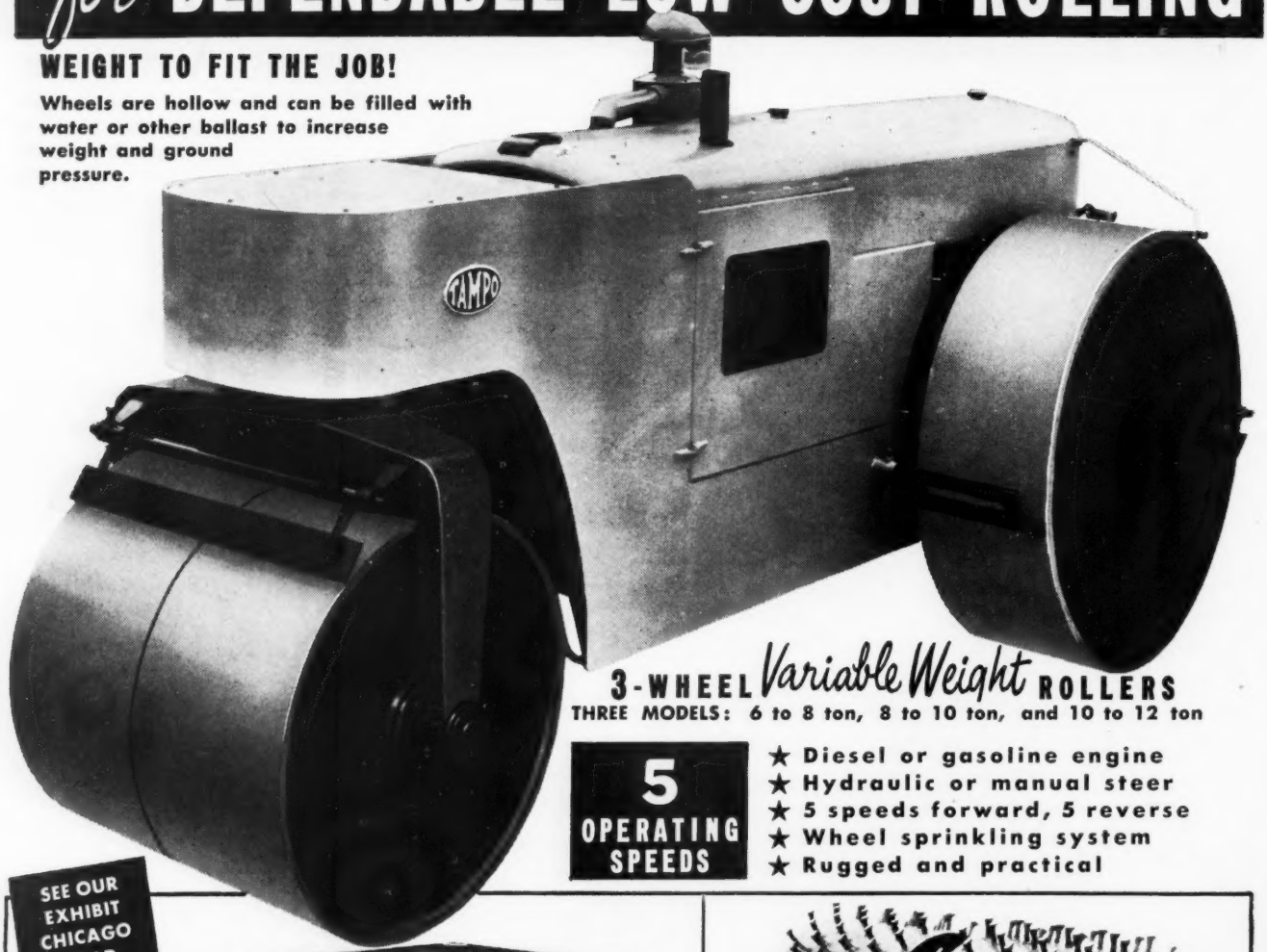


TAMPO *Variable Weight* ROLLERS

for DEPENDABLE LOW COST ROLLING

WEIGHT TO FIT THE JOB!

Wheels are hollow and can be filled with water or other ballast to increase weight and ground pressure.



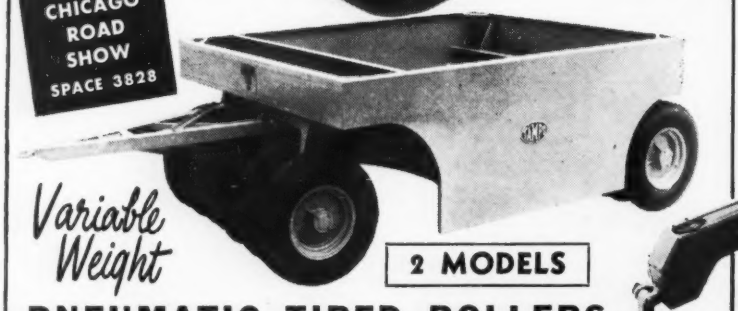
3-WHEEL *Variable Weight* ROLLERS

THREE MODELS: 6 to 8 ton, 8 to 10 ton, and 10 to 12 ton

5 OPERATING SPEEDS

- ★ Diesel or gasoline engine
- ★ Hydraulic or manual steer
- ★ 5 speeds forward, 5 reverse
- ★ Wheel sprinkling system
- ★ Rugged and practical

SEE OUR EXHIBIT CHICAGO ROAD SHOW SPACE 3828



Variable Weight

2 MODELS

PNEUMATIC TIRED ROLLERS

- ★ 13 - WHEEL ROLLERS with 84" FULL COVERAGE rolling width
- ★ 9 - WHEEL ROLLERS with 60" FULL COVERAGE rolling width
- ★ OSCILLATING AXLES assures uniform compaction & longer tire life
- ★ GROUND PRESSURE VARIABLE - DEPENDS ON WEIGHT OF BALLAST
- ★ ROLLER BEARINGS - TWO IN EACH WHEEL

Variable Weight

SHEEPSFOOT TAMPING ROLLERS

- ★ 6 MODELS: 40" and 60" diameters. Single and double drum
- ★ PEAR SHAPED FEET assure least disturbance to areas already compacted
- ★ OSCILLATING DRUMS. Axle passes clear through drum
- ★ ROLLER BEARINGS. Two in each Drum
- ★ RUGGED AND PRACTICAL

TAMPO MANUFACTURING COMPANY

1146 W. LAUREL - TELEPHONE P-9173 - SAN ANTONIO 6, TEXAS

The old Northwest owners buy for THE HEART OF THE JOB!

It is now FORTY-TWO NORTHWESTS for Blythe Brothers Co. Charlotte, N. C.

Shovel, Crane, Dragline and Pullshovel jobs are *Key Spots!* They are generally the heart of the job — the place where the output and the profits begin. That is why old timers like Blythe Brothers of Charlotte, N. C., buy Northwests again and again.

That's why one out of every three Northwests sold is a repeat order.

You can't afford to have anything but the best in the heart of the job. That is where you need Northwest dependability. That is where you need the Northwest advantages like the "Feather-Touch" Clutch Control, the Cushion Clutch, Uniform Pressure Swing Clutches, the Northwest Dual Independent Crowd and the many other Northwest features. Ask Northwest users — follow the "Crowd" and plan on a Northwest for the *Key Spots!*

NORTHWEST ENGINEERING CO.
1503 Field Building,
135 South LaSalle Street,
CHICAGO 3, ILLINOIS

BETTER ROADS FOR A BETTER WORLD — 45th Annual Convention and Road Show — SOLDIER FIELD CHICAGO — JULY 16-24, 1948

NORTHWEST

SHOVELS • CRANES • DRAGLINES • PULLSHOVELS

Here's a new Thor breaker so good it will "sell in pairs!"

It's the Thor "24"—a completely new 70-*pound* breaker that answers a big demand for a demolition tool just under the heavy duty class.

More than this, *two* of the new Thor "24's" will operate at full efficiency off one 105 cubic foot compressor . . . *another popular demand!*

The Thor 84-pound "25" leads the heavy duty field . . . the Thor 59-pound "23" outpowers the light duty class. NOW Thor places a great new leader in the 70-pound class.

Watch for full details soon from your Thor distributor.

INDEPENDENT PNEUMATIC TOOL CO.

Aurora, Illinois

Export Division 330 W. 42nd St., New York 18, N.Y.

Birmingham Boston Buffalo Chicago Cincinnati Cleveland Denver Detroit Houston Los Angeles Milwaukee New York Philadelphia Pittsburgh St. Louis St. Paul Salt Lake City Seattle San Francisco Toronto, Canada Sao Paúlo Brazil London, England

Thor PORTABLE POWER TOOLS

SEE THE NEW THOR "24" AT THE ROAD SHOW

On the RIGHT ROAD with MACK TRUCKS...

Experienced road builders know they're on the right road when they use rugged, hard-working Mack trucks.

Maintaining the roads of today . . . or building the highways of tomorrow, Macks win stand-out preference because they bring to the job exclusive quality features found in no other truck — features that assure unrivaled economy and enduring reliability.

High-efficiency engines give extra power, plus all-around savings in fuel and maintenance costs. Husky frames and driving members are engineered and built for utmost durability — to stand up and last longer under the severest punishment of road building work.

Mack's complete line provides performance-proved models ranging from 3-ton up to 30-ton payload capacities. Available in truck or tractor types — with four or six wheels — gasoline, diesel or butane-fueled engines — transmissions, axles and wheelbases for every operating requirement.

MACK at the Road Show

CHICAGO: July 16-24

Mack's exhibit at the annual Road Show of the American Road Builders Assn. will feature models of the type illustrated here — including the mighty Mack Model LV of 22 tons capacity. Be sure to see these great trucks. Ask for your copy of our new booklet, "Mack Builds The Highways Of The Future." It gives the full story of what Macks are doing on road building projects all over the country — what Macks can do for you in lower costs and greater efficiency on the job.

Mack

trucks for every purpose

Mack Trucks, Inc., Empire State Building, New York 1, New York. Factories at Allentown, Pa.; Plainfield, N. J.; New Brunswick, N. J.; Long Island City, N.Y. Factory branches and dealers in all principal cities for service and parts. In Canada, Mack Trucks of Canada, Ltd.

6723

ZONED EQUIPMENT

"Caterpillar" Diesel DW10 Tractors pulling scrapers average 8 cu. yds. of earth per 1½-mile round trip to the levee fill.

A "Caterpillar" Diesel No. 12 Motor Grader handles a big blade-load, building road for levee-building.

Built the Levee—Saved the Town

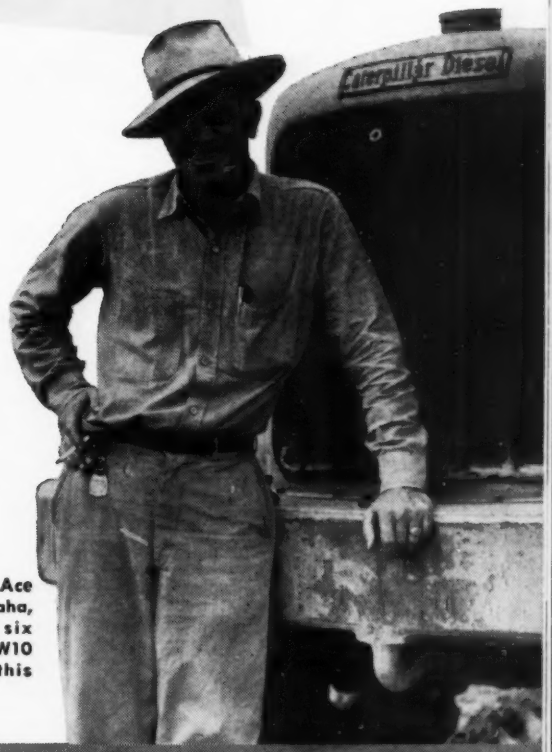
Hamburg, Iowa, was within inches of destruction in the floods of June, 1947. The city was saved by the fast work of Ace Construction Co., Omaha, Nebraska, which had a contract to build four miles of levee along the Nishnabotna River.

With borrow pits under ten feet of water, the company had to resort to longer hauls, made possible by "Caterpillar" Zoned Equipment. Working night and day, the tractor drivers kept the bank six inches above the flood, even when it reached an all-time record high. The job was finally completed in October, two months ahead of schedule.

On this 600,000-yard contract the short-haul earthmoving was done by "Caterpillar" Diesel D6 and D7 Tractors with bulldozers and scrapers. "Caterpillar" Diesel DW10 Tractors, rolling on rubber tires, speeded up the longer hauls. And a "Caterpillar" Diesel No. 12 Motor Grader maintained haul roads and leveled the fill.

Allen Tooley, Superintendent, gives high credit to the DW10 Tractors. He likes their power and dependability, their safe operation, maneuverability and easy steering. Speaking of the new model No. 12 Motor Grader, he says: "It handles the largest loads in second gear and up, never having to go into first. This machine easily handles 25% more than any other grader we've ever used."

CATERPILLAR TRACTOR CO., PEORIA, ILLINOIS



Allen Tooley, Supt., Ace Construction Co., Omaha, Neb., and one of six "Caterpillar" Diesel DW10 Tractors used on this levee job.

"Caterpillar" builds the units you need to zone equipment for LOWEST COSTS ON EARTH

1. Track-type tractors and bulldozers for "push"-distance earthmoving.

2. Track-type tractors and scrapers for medium earthmoving distances.

3. Wheel tractors and scrapers (or wagons) for high-speed long hauls . . . plus motor graders for finishing work.

CATERPILLAR DIESEL

REG. U. S. PAT. OFF.

ENGINES • TRACTORS • MOTOR GRADERS • EARTHMOVING EQUIPMENT

'48 Road Show • Soldier F

EUCLID will be there in

Don't miss the biggest Road Show in history—you'll see the largest display of construction equipment ever assembled.

A pioneer in the development of off-the-highway hauling equipment, Euclid continues to lead the field and will be one of the largest exhibitors. Many new and improved models will be shown for the first time. In all, there'll be 24 Euclid units with payload capacities up to 40 tons—several cutaway units will be of special interest. Hauling equipment specialists will be on hand to provide technical information and discuss your construction problems.

There'll be plenty of comfortable shaded seats, so make the Euclid exhibit your headquarters and meet your friends there.

MANY NEW MODELS on display for the first time

22 RAILROAD CARS OF EQUIPMENT

The largest display of off-the-highway hauling equipment

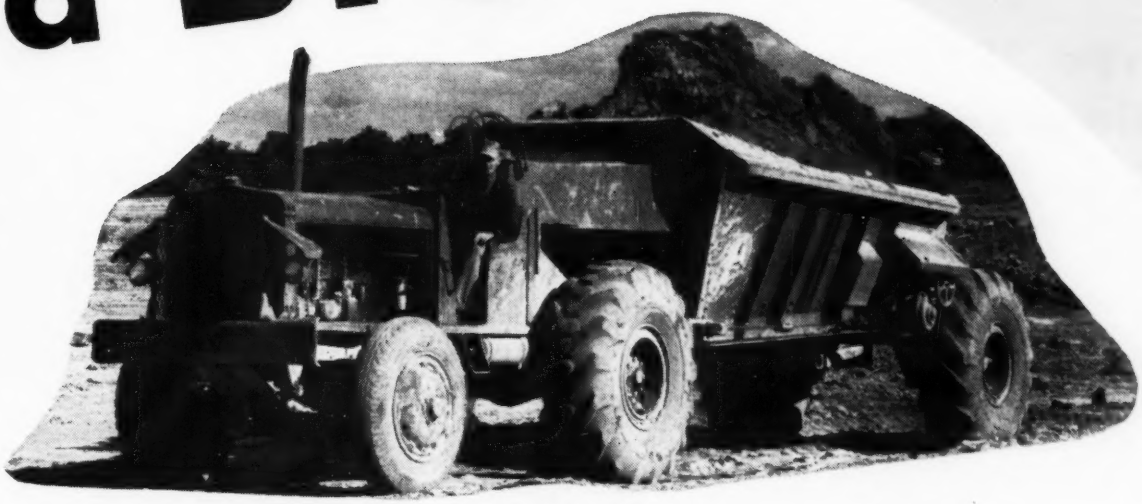
BOTTOM-DUMPS
REAR-DUMPS
SIDE-DUMPS
LOADERS

EUCLID THE PIONEER

EUCLIDS

Soldier Field·Chicago • July 16-24

a BIG WAY!



SEE THE MOST COMPLETE LINE OF MODERN OFF-THE-HIGHWAY HAULING EQUIPMENT.

24 Models
Payload Capacities up to 40 tons

THE EUCLID ROAD MACHINERY CO., Cleveland 17, Ohio

Move the Earth

more than 300 construction JAEGER-ENGINEERED

type "X" diagonal screed finisher

—the revolutionary labor-saving tool to work with today's mass production pavers. Can finish flush to higher form; saves carry-back; insures precision-smooth surface.

see them all at the Road Show next month or see your Jaeger distributor today

Air Compressors
Bituminous Pavers
Bituminous Spreader-Finishers
Concrete Screw Spreaders
Diagonal Screed Finishers
Widening Finishers

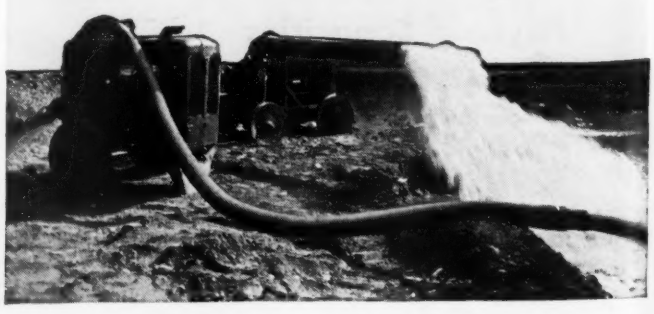
"air plus" compressors

Portable and stationary; sizes up to 600 ft. Designed for full-pressure operation of modern air tools. See them before you buy any compressor.

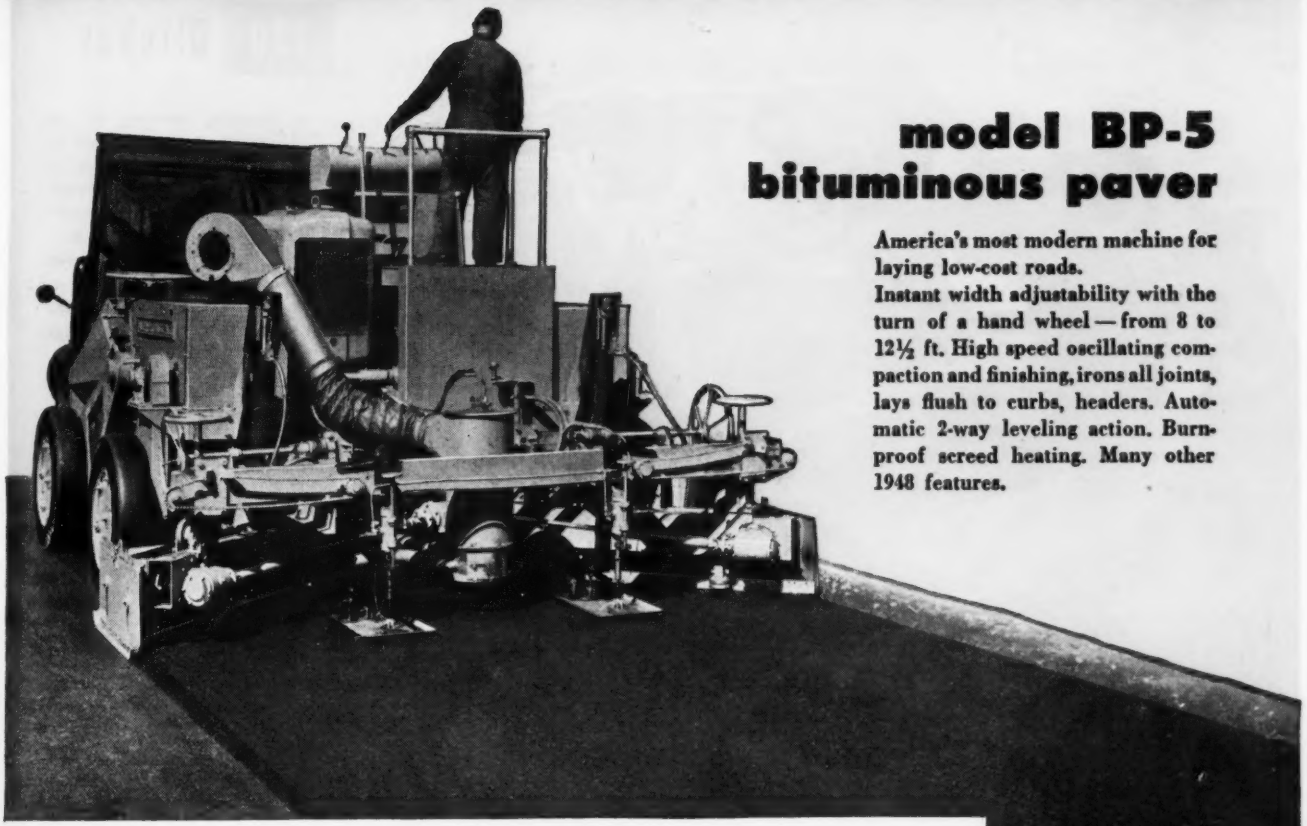
more air is THERE

"sure prime" pumps

Drainage pumps for all requirements up to 10" size, plus latest line of pressure pumps for higher head service such as tank trucks, roadside seeding and weed control spraying, water supply, etc.



and paving machines for labor-saving mass production



model BP-5 bituminous paver

America's most modern machine for laying low-cost roads.
Instant width adjustability with the turn of a hand wheel — from 8 to 12½ ft. High speed oscillating compaction and finishing, irons all joints, lays flush to curbs, headers. Automatic 2-way leveling action. Burn-proof screed heating. Many other 1948 features.

Stone & Material Spreaders
Side Discharge Truck Mixers for Paving
Form Tampers
Drainage Pumps
Pressure Pumps
2-Speed Hoists
Self-Raising Towers
Concrete Mixers
Cold-Patch Mixers
Plaster-Mortar Mixers
Truck Mixers
Portable Hoppers

"speedline" mixers

Recognized world's leading line of portable mixers for high daily yardages of concrete, bituminous cold patch, plaster, mortar. Sizes 3½S to 16S.

Sold, rented, serviced in 130 cities of U. S. and Canada

THE JAEGER MACHINE CO.

COLUMBUS 16, OHIO

REGIONAL OFFICES:
1504 Widener Bldg., Philadelphia 7
226 N. La Salle St., Chicago 1
235 American Life Bldg., Birmingham 1

Barber-Greene

720 Ditcher

For digging trenches 8" to 11" wide—up to 4 feet in depth. Digging speeds up to 32 F.P.M.; traveling speeds as high as 234 F.P.M. adjustable spoils conveyor discharges on either side. Three-position boom adjustable to dig close to obstructions. Simple B-G controls, easy-steering.

Two great new ditchers in the B.G. line!

These two new ditchers bring exclusive, time-proved B-G advantages . . . the B-G Vertical Boom that digs straight down, leaves no ramp . . . close-spaced, self-cleaning buckets that cut, like a milling machine, into toughest ground . . . the patented B-G overload Release for greater protection . . . *plus* special features for their types of service.

710 Ditcher

Digs trenches 5½" wide up to 42" deep. Digging speeds up to 32 F.P.M.; travel speeds up to 234 F.P.M. Vertical three-position boom digs close to obstructions. Cable-laying attachment available to feed cable and plow over the spoil in one continuous pass.

89

Ask your Barber-Greene distributor for full details on the B-G Ditcher which interests you — or write to Barber-Greene Company, Aurora, Illinois.

BARBER · GREENE COMPANY — AURORA, ILLINOIS

Constant flow Equipment

LOADERS · PERMANENT CONVEYORS · PORTABLE CONVEYORS · COAL MACHINES · BITUMINOUS PLANTS · FINISHERS · DITCHERS

Another Thermoid *First!*

New Wire Braiding Equipment Produces Larger, Stronger Hose for High Pressures

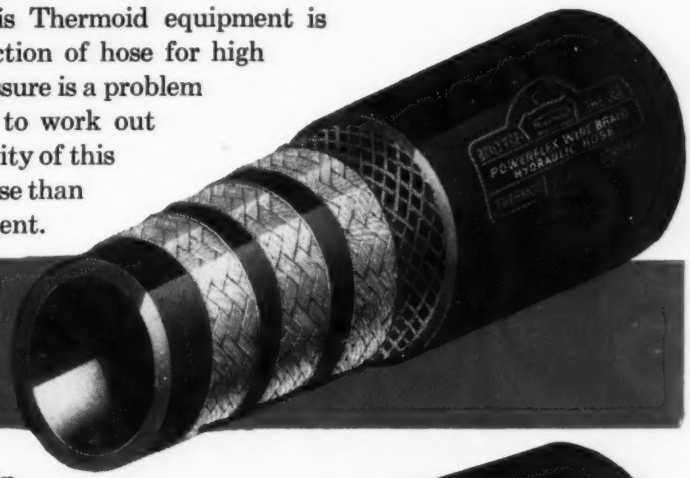
The world's largest wire braiding machine specifically designed for the manufacture of hose is now in production at Thermoid's modern Nephi, Utah, plant. The possession of this equipment enables Thermoid to make wire braid hose in larger sizes and with greater strength than had previously been possible.

Hoses of 2, 3 or 4 braids can be made on this machine in sizes up to 2½" I.D. That means Thermoid can make hose that will rival pipe in strength but still have the flexibility of rubber. The specifications of Thermoid's hose for carrying high pressure are superior to any current production on the market.

If Pressure Is A Problem

In addition to the hoses specified below, this Thermoid equipment is available for special designs involving construction of hose for high pressure work. If you have a hose use where pressure is a problem give us the overall facts. We will undertake to work out a practical design that can use the unusual capacity of this machine to produce a stronger, more compact hose than could be made by any other method or equipment.

Powerflex Wire Braid Hydraulic Hose



Can now be produced in sizes from 3/16 to 2" I.D. in 50 ft. lengths, in 1, 2, 3 or 4 braids, working pressures from 500 to 5,000 lbs.

Powerflex Wire Braid Steam Hose

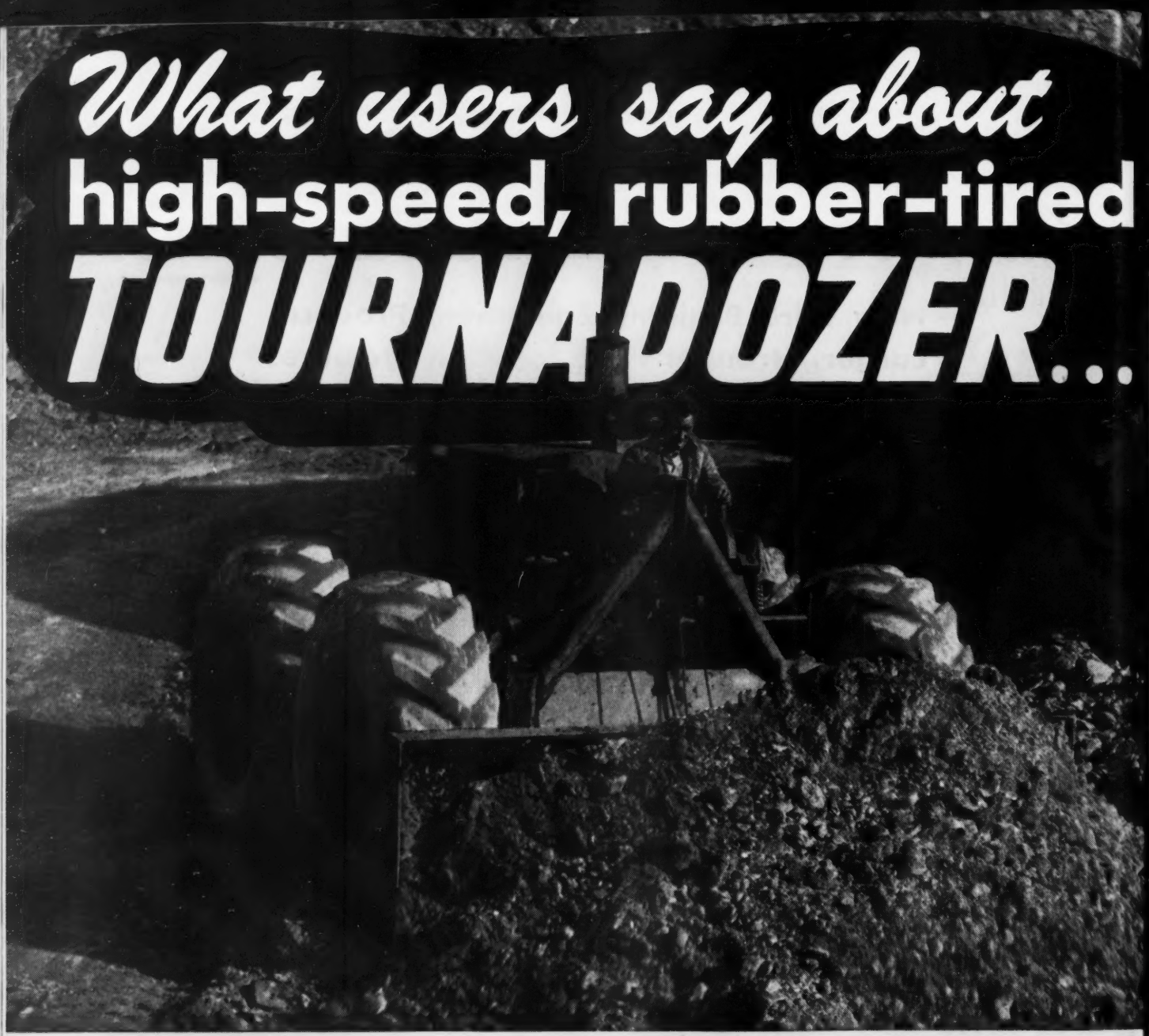
Practically burst-proof because of the wire braid reinforcing.

Recommended for pressures up to 200 lb. saturated steam. Specially compounded tube resists heat—asbestos cord layer dissipates heat and forms a permanent bond to the tough, rubber cover. Available in sizes ½ to 2½" I.D. and in lengths up to 50 ft.

The Thermoid line includes: Transmission Belting • F.H.P. and Multiple V-Belts • Conveyor Belting • Elevator Belting • Wrapped and Molded Hose • Custom Molded Products • Industrial Brake Linings and Friction Materials.

Thermoid Thermoid Company · Trenton, N. J., U. S. A.
Automotive • Industrial • Oil Field • Textile Products

What users say about high-speed, rubber-tired TOURNADOZER...



Operator William V. Stewart says:
"Fastest method I've ever seen for cleaning coal . . . easy to operate . . . easy to grease."

ACCEPTANCE of this high-speed, rubber-tired C Tournadozer as a high production tool is evidenced by the many enthusiastic letters received from owners, supervisors, operators and servicemen in the field. The comments here are taken from a few of those letters. Owners are ***sold*** on Tournadozer because of its high production . . . twice that of crawler dozers. Operators and servicemen like its speed, its smooth, easy operation and simple maintenance. You'll like it because it will put dollars in ***your*** pocket. Mail coupon for facts!

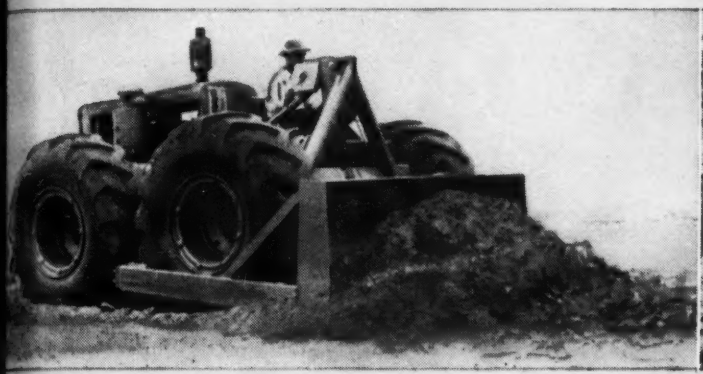
Mine Owner F. A. Howe says:
"It does a good job any place we put it . . . will doze about 50% more spoil than a crawler."

LETOURNEAU EQUIPMENT

It's RUBBER THAT PUTS THE ACTION IN TRACTION . . . See your LeTourneau Distributor NOW for complete information

Operator Melvin Stevens says:
"Dozing coal I make 3 trips to crawler's 1 . . . get more coal in 1 load than a crawler can in 2."

Operator Barney Sullivan says:
"It sure is easy to handle. I can look over blade and see what I'm doing."



Operator Lonnie Rosenbaum says:
"On pusher work I keep four scrapers working steady, loading sand and silt."

Operator James F. Ross says:
"Can do a day's work and not be half as tired . . . more power than crawler . . . sure good on fuel."

Superintendent W. A. Pahhala says:
"Tournadozer gives a remarkable saving in travel time . . . it's especially good for scattered jobs."

Contractor Sam Falbo says:
"You can cross tracks . . . pavement, etc., without damage . . . produce more than a crawler."

Plant Manager E. R. Evans says:
"I estimate Tournadozer will move as much shale in ½ day as crawler can in a full day."

MAIL THIS COUPON TODAY

R. G. LeTOURNEAU, INC., Peoria, Ill.

Please send me literature on Tournadozers ☐ Tournapulls ☐

Our company might be interested in buying about.....19.....

NAME.....TITLE.....

COMPANY.....

ADDRESS.....

CITY, STATE.....

Tournadozer—Trademark C90

LETOURNEAU PEORIA, ILLINOIS — HIGH-SPEED RUBBER-TIRED **TOURNADOZERS**

NATURALLY BETTER...

LION NATURALUBE D.H.D. OIL FOR DIESEL AND HEAVY DUTY MOTORS

Better by Nature

- **REMOVES HARD CARBON** — *Nature* gave Naturalube remarkable carbon removing ability. Cuts power loss and wear.
- **STRONGER PROTECTIVE FILM** — The *naturally* tougher film of Naturalube provides extra protection for motor parts.
- **GREATER PENETRATION AND ADHESION** — These *natural* qualities assure better lubrication from the time the engine starts. Lion carefully safeguards these superior qualities during refining.

Reinforced by Lion

- **RESISTS FORMATION OF SLUDGE** — Lion especially reinforces Naturalube D.H.D. to make it resistant to formation of harmful sludge and lacquer . . . to keep motors cleaner.

GUARANTEE

If you don't believe Naturalube D.H.D. is the best oil you've ever used, Lion Oil Company will give you your money back.

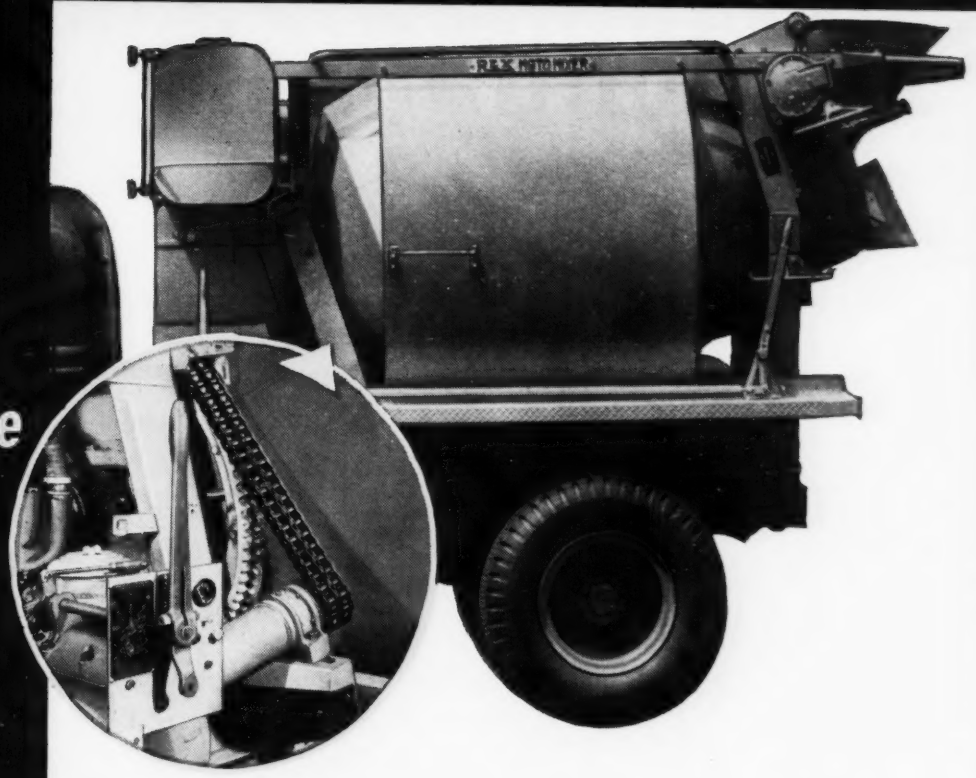
Ask your Lion Distributor for complete information about D.H.D. or write to Lion Oil Company, El Dorado, Arkansas.

"Petroleum Promotes Progress"

LION OIL COMPANY EL DORADO ARKANSAS

LION

What the REX Chain Drum Drive Means to You!



NO STRAIN WITH CHAIN

Eliminates Binding..... Accommodates Misalignments

Truck mixers are subjected to severe twists and strains as the truck weaves over rough roads. To protect transmission, gears, shafting, power plant . . . to prevent destructive binding action between drum and transmission, Rex Moto-Mixers employ the exclusive chain drum drive. This flexible drive absorbs the shocks and accommodates the *unavoidable* misalignments to which all truck mixers are subjected.

Permits Proper Weight Distribution

Thanks to the Rex Chain Drum Drive, weight can be correctly distributed in Rex Moto-Mixers. There is no need for excessively heavy frames and transmission cases or complicated transmissions, to overcome the effects of misalignment and strains. And weight saved here can be properly distributed to parts where it is needed most . . . bearings, shafting, blades, drum rollers, drum shell, drum supports.

Provides a Uniform Application of Power

The Rex Chain Drum Drive wraps more than halfway around the drum sprocket and more than one-third around the drive pinion to provide a uniform application of positive power. This positive power is applied to the drum over many sprocket teeth. Contrast this design to the gear drives of other truck mixers where the point of contact between drum gear and drive pinion is concentrated on a single gear tooth.

LONGEST LIFE . . . LOWEST MAINTENANCE . . . MORE PROFIT FOR YOU!

Have your Rex Distributor show you how the Chain Drum Drive means more profit to you. Chain Belt Company, 1664 West Bruce Street, Milwaukee 4, Wis.

CHAIN BELT COMPANY

. . . REX CONSTRUCTION MACHINERY

LEADING THE POWER PARADE A

AT this greatest of all *road shows* you'll see International leading the power parade in the earthmoving and roadbuilding industry!

Everything in the International Industrial Power line will be shown... everything from giant TD-24 crawlers with matched equipment down to the Industrial CUB with side-mounted mower. You don't have to go outside the International Industrial Power exhibit to see all the modern roadbuilding and earthmoving equipment you need!

International Harvester's part of the Road Show at Soldier Field in Chicago will be a show in itself! It will occupy 80,000 square feet of space and spill over into an additional 90,000 square feet occupied by International's allied equipment manufacturers. Here International will show you the power and equipment that will do your jobs most economically and fast.

And your International Industrial Power Distributor is ready to supply your needs in power, equipment, accessories and service.

Industrial Power Division

INTERNATIONAL HARVESTER COMPANY

180 North Michigan Avenue Chicago 1, Illinois

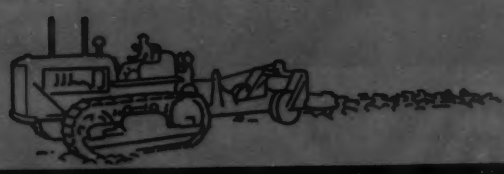
CRAWLER TRACTORS
POWER UNITS
DIESEL ENGINES
WHEEL TRACTORS

INTERNATIONAL

DE AT THE A.R.B.A. ROAD SHOW

Industrial Power

INTERNATIONAL HARVESTER



ANNOUNCING!

THE NEW 7-TON TOURNACRANE

MODEL EC-7

FOR TOUGH LIFT-AND-CARRY JOBS

Here's the new EC-7 Tournacrane! A mobile 7-ton crane that can carry and spot any load it can pick up... And it can pick up and carry a heavier load over tougher working terrain than any other mobile crane of similar rated capacity. It does this lifting without the use of mobility-robbing outriggers! And off-road travel with capacity loads is a cinch with the Tournacrane's large, low-pressure tires and special torque-proportioning differential that supplies up to 4 times greater power to wheel on the firmest footing!

The EC-7 costs less to operate... It's a one-man machine, with amazing electrical control that's as simple to operate as pushing a light switch! Long periods of on-the-job training are thus no longer required, and the old two-man co-ordination problem is eliminated to give faster, more efficient operation. These manhour cuts mean a drastic reduction in daily operational costs!

Tournacrane's telescopic boom permits work where headroom is as low as 8′9″ or as high up as 31′... And this boom assures superior load control at all times, since only short-length hoist cable is required in any working position. Complete rotation of the Tournacrane is easy with the Tournapull turning at right angles to the crane, which pivots on its axis—this means full revolving action with a work radius up to 31′. It also means the unit can work efficiently in extremely congested areas, because it can be turned completely around in less than 20′.

All of these features make the EC-7 a more efficient utility crane—and it is only one of a complete line of Tournacranes now available, including the 15-ton, 30-ton, and others of heavier capacities. These are lift-and-carry tools that can mean more profits for you!

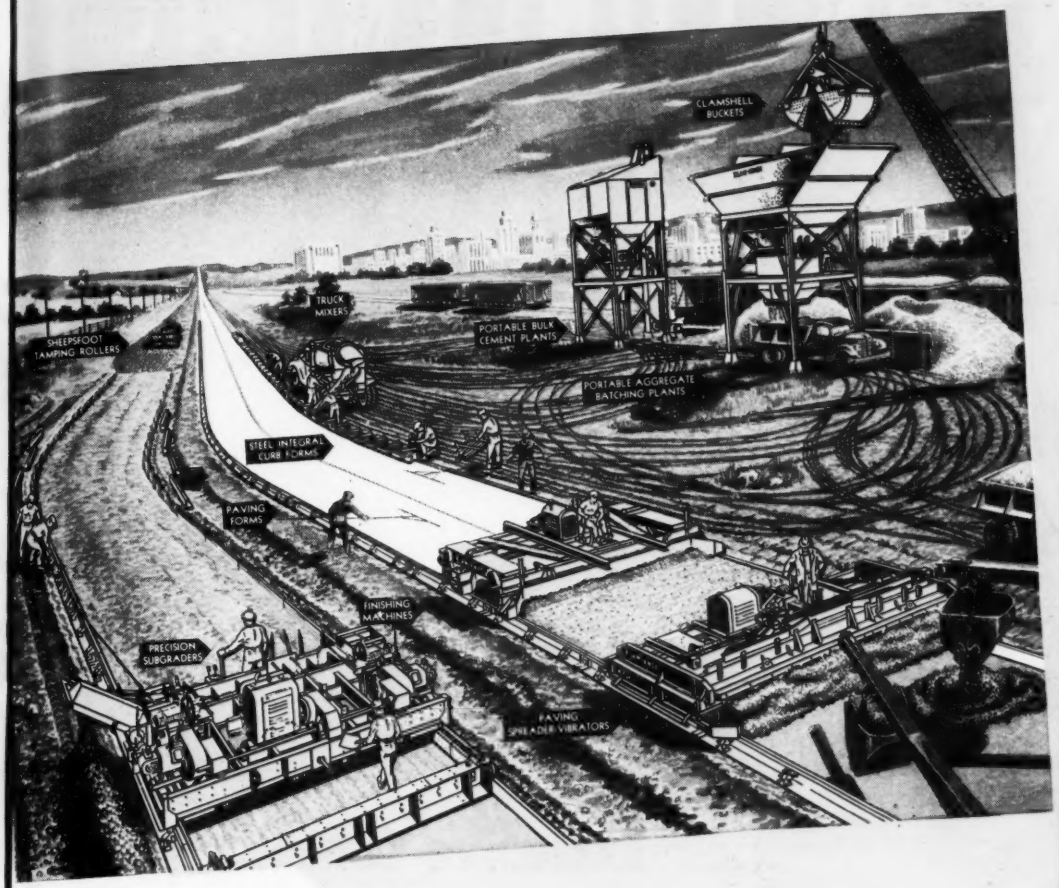
TOURNALAYER DIVISION

R.G. LE TOURNEAU INC

Longview, Texas

Tournacrane—Reg. U.S. Pat. Office

The BLAW-KNOX EXHIBIT MAKES YOUR ROAD SHOW TRIP WORTH-WHILE



- Steel Street Forms
- Steel Paving Forms
- Precision Subgraders
- Concrete Paving Spreaders
- Finishing Machines
- Paving Vibrators
- Aggregate Batching Plants
- Cement Batching Plants
- Ready Mixed Concrete Plants
- Truck Mixers and Agitators
- Concrete Buckets
- Clamshell Buckets
- Steel Forms for Dams, Tunnels, Bridges, etc.
- Prefabricated Steel Buildings
- Steel Grating

See this *NEW* equipment in actual operation

If you're planning to make money out of the big road-building program don't miss this "unveiling" of brand new and improved mechanized equipment by Blaw-Knox.

You can push buttons, pull levers or relax in an easy chair and watch movies of the same equipment in actual use on construction projects. You'll be convinced that Blaw-Knox has paved the way to faster, better, more profitable paving.

Blaw-Knox Division of Blaw-Knox Co.
2067 Farmers Bank Bldg., Pittsburgh 22, Pa.
New York • Chicago • Philadelphia • Birmingham • Washington
Representatives in Principal Cities

BLAW-KNOX THE ONLY *SINGLE* SOURCE FOR COMPLETELY MECHANIZED CONCRETE PAVING MACHINERY

JOHNSON CONCENTRIC

GIVE YOU CENTRAL CEMENT

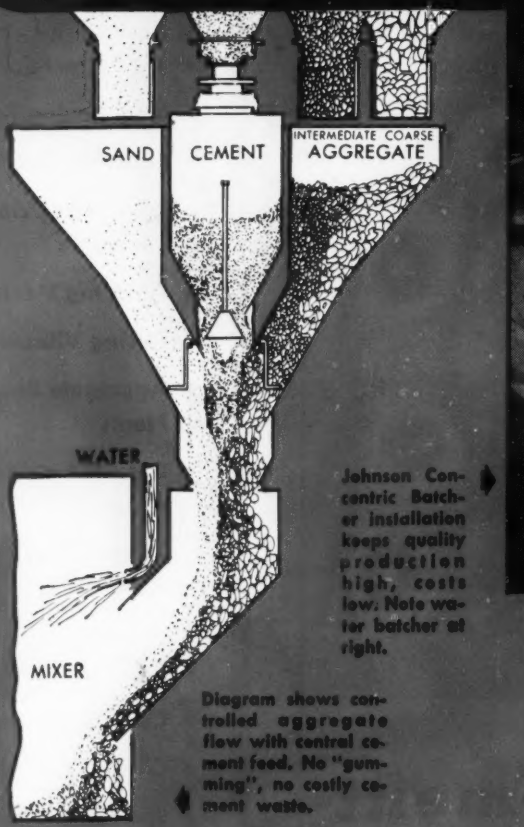
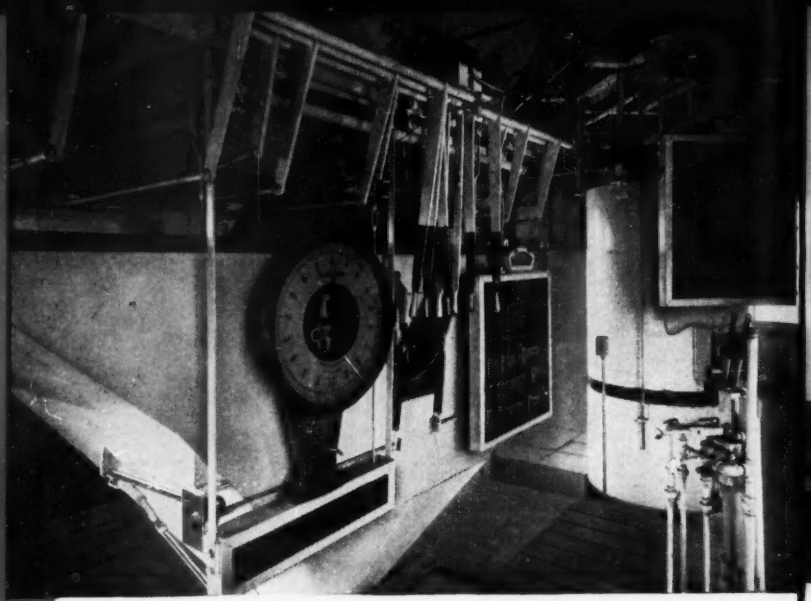
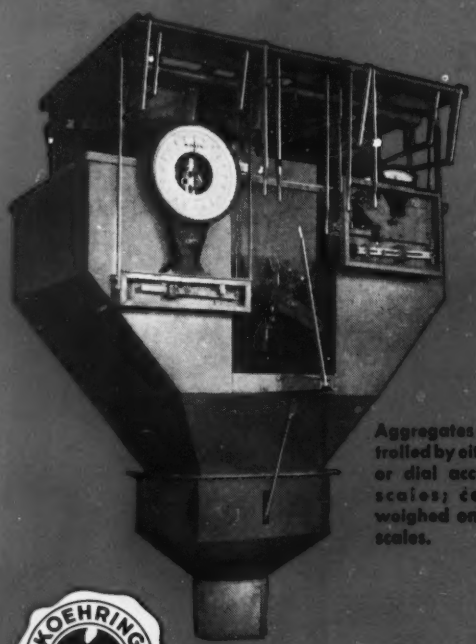


Diagram shows controlled aggregate flow with central cement feed. No "gumming", no costly cement waste.



Johnson Concentric Batcher installation keeps quality production high, costs low. Note water batcher at right.



Aggregates are controlled by either beam or dial accumulative scales; cement is weighed on separate scales.

Exclusive Concentric Feature Prevents Costly Cement Loss, Pre-Shrinks

Only with the Johnson patented Concentric Aggregate-Cement Batcher can you get all of these advantages for fast, efficient, economical operation:

1. Centralized control provides easy and fast operation.
2. Batching cycle time is reduced by fast charging and discharge of batchers.
3. All ingredients are intermingled as they flow through discharge.
4. Materials are pre-shrunk and dusting reduced.
5. "Gumming" is eliminated.
6. Cement, concrete's most expensive ingredient, is weighed on separate scale in individual centrally located cement batcher and further protected from loss by concentric arrangement of aggregates around the cement batcher discharge.
7. Adjustable rate of discharge of each aggregate from batcher gives better control of ribbon feeding.
8. Dual discharge is available . . . no separate collecting cone.
9. Extra steep bottom slopes prevent hang-up.

Let your Johnson distributor show you how these features can increase your plant production and lower costs.

KOEHRING K PRODUCT

THE C. S. JOHNSON COMPANY

BATCHERS FEED

This efficient aggregate and cement-handling plant is built around a 314 cubic yard Johnson Octo-Bin. You'll see these bins used in successful concrete plants the country over.

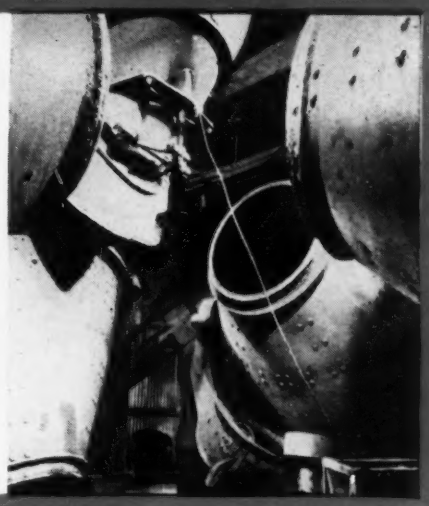
Modern 314 cubic yard combination Central Mix and Concrete Products Plant. More than 100,000,000 cubic yards of concrete have been poured by job-tested Johnson plants.

KOEHRING SUBSIDIARY
CHAMPAIGN, ILLINOIS

No. 802

20,000 yards in one 24-hour period

Eight 4-yard Koehring Concentric Zone mixers in the Johnson Central Mix Plant at Grand Coulee poured a record 20,000 cubic yards of concrete in one 24-hour nonstop period, after pouring 5,000,000 cubic yards prior to the record run. From midnight to midnight, these mixers never stopped once.



KOEHRING COMPANY MILWAUKEE 10, WISCONSIN

Every batch a perfect mix

Improved mixing action of the revolving drum of the Kwik-Mix 16-S Dandie mixes every batch of concrete for perfect texture. You get better concrete because every particle of the aggregate is completely cement-coated. Same thorough mix in all Kwik-Mix Dandie mixers including 3½-S, 6-S, and 11-S sizes.

KWIK-MIX COMPANY PORT WASHINGTON, WISCONSIN
KOEHRING SUBSIDIARY

Sidesteps side obstructions

Boom of the Parsons 221 Trenchliner* quickly and easily rides on rollers from side to side across the full width of the Trenchliner. That's why the Parsons 221 Trenchliner can cut a trench as close as 10" from side obstructions. Trenches up to 8' depth, 16" to 36" wide.

*Reg. Trade-mark

PARSONS COMPANY NEWTON, IOWA
KOEHRING SUBSIDIARY

"the Handiest Tote Rig on the Job"

. . . that's what they said at Patterson field

. . . that's what they say all over, about Le Roi 105 Tractair

Tractair's usefulness is increased still more when you fill its tool box with Le Roi-Cleveland Air Tools . . .

Handy is the word for this combination 35-hp wheel tractor and 105 cfm air compressor. Thanks to interchangeable front-end equipment and its own air power, Tractair sweeps, mows, and loads — tows, plows, and pulls — drills, bores, and digs.

Tractair is Econotrol-equipped so that it supplies air economically and maintains high average working pressures. You get still more out of Tractair when you use Le Roi-Cleveland paving breakers, spades, backfill tampers, and hand-held drills. The efficiency of these tools is such that they use little air while doing a lot of work.

Your Le Roi distributor can show you what we mean when we say "Tractair and Le Roi-Cleveland Air Tools save you money." See him soon and write us for our latest catalog, too.

LE ROI COMPANY

MILWAUKEE 14, WISCONSIN

NEW YORK • WASHINGTON • CLEVELAND • BIRMINGHAM
MILWAUKEE • TULSA • BUTTE • SAN FRANCISCO

LE ROI MILWAUKEE T-8

. . . Tractair and Le Roi-Cleveland Air Tools save you money

No deposits after 200,000 miles

Stanolube HD

Miles, Iowa
December 15, 1947

Mr. R.T. Kinneman, Manager
Standard Oil Company
Des Moines, Iowa

Dear Sir:

I have been using your Stanolube HD and Permalube Motor Oil in my fleet of trucks for quite some time and thought you might be interested in knowing that one of my Whites (W-A-22) recently turned 200,000 miles and had never had anything done to it outside of carburetor, ignition tune-up, and one valve job.

I sent this truck to an authorized White Dealer in Davenport, Iowa for a complete motor overhaul. After tearing the motor down, I was informed by the above concern that the motor was in excellent condition. There were no deposits in the engine, all of the bearings were in excellent condition, the wrist pins, valves, valve guides, hydraulic valve lifters, timing gears and other parts were in excellent shape. There were no stuck rings and the oil control rings were clean and free.

The truck company re-assembled the engine, using a new set of rings and ground the valves.

I thought you would be interested in knowing the results obtained while using your products and knowing how well pleased I am with the performance obtained.

Yours truly,

Milo Kunau

Milo Kunau

How Stanolube HD helps fleet engines roll up record mileage between overhauls is convincingly told in the above letter from Mr. Milo Kunau, a fleet owner in Miles, Iowa.

Read Mr. Kunau's letter from the point of view of your own fleet. See how Stanolube HD might solve your maintenance problem or increase your fleet operating economy. You'll find Mr. Kunau's experience with this truly heavy-duty detergent oil a good clue to lower maintenance for you. You can verify his experience by trying Stanolube HD in one of your hard-working fleet units. Write Standard Oil Company (Indiana), 910 South Michigan Avenue, Chicago 80, Illinois.

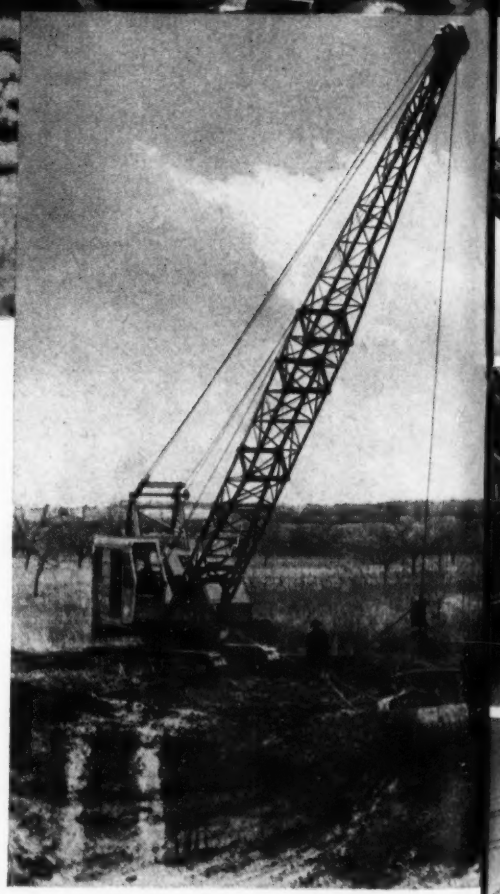
STANDARD OIL COMPANY (INDIANA) STANDARD

WHERE P&H Speed PAYS OFF!

You can't get away from it—time is money the moment your excavating equipment starts on the job. Where you can save time, you can save money. Think of it as an extra margin of profit for you.

Investigate performance in terms of speed. Examine the machine functions where it is most vital. Study basic design. Look into specific operating advantages. And remember that dependability is a factor of first importance because it means freedom from costly lay-ups.

Your critical comparisons will reveal the many added values built into P&H Excavators.



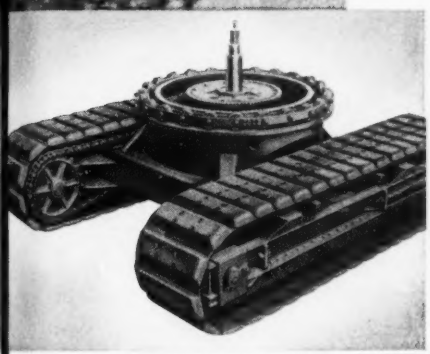
●P&H originated all-welded excavator construction. Used throughout both upper and lower structures, as well as for front end attachments, welded alloy steels increase production by eliminating excess weight — reducing breakdowns to a new minimum.

P&H **EXCAVATORS**
4494 W. National Ave.
Milwaukee 14, Wisconsin
HARNISCHFEGER CORPORATION
EXCAVATORS • ELECTRIC CRANES • ARC WELDERS P&H HOISTS • WELDING ELECTRODES • MOTORS

P & H Excavators are built in sizes up to 6 yards, gasoline, Diesel or electric po Write for literature on the size that interes

P&H added speeds are added values

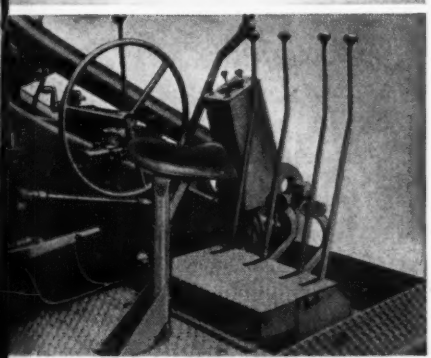
Every detail of P&H design and construction has been engineered to cut costs on the job — now and for years to come. These are practical values which have been proved on thousands of jobs. Following are a few typical P&H features that contribute to lower job costs.



1

TRUE TRACTOR TYPE CRAWLERS

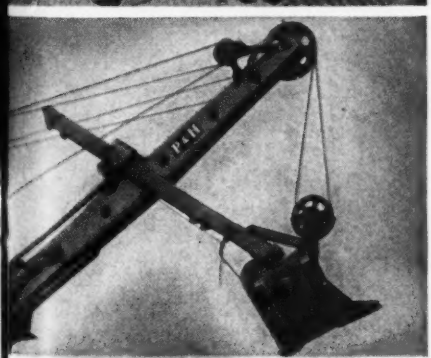
— the most efficient traction ever put on an excavator. Travel is smoother, faster; steering is easier, maintenance is far less. Independent holding brakes cut move-up time 75%.



2

HYDRAULIC CONTROL

— provides the quicker response that means faster digging, greater production. It is easier on both the machine and the operator.



3

PLANETARY CHAIN CROWD

— provides full power on every bite, snappier dipper action, rapid reversal. Crowd chain outlasts 25 to 30 crowd cables. There's far less maintenance.

4

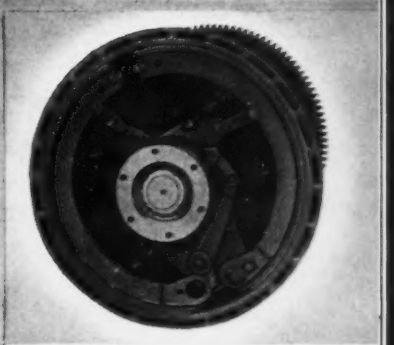
LIVE ROLLER CIRCLE

— distributes weight of revolving frame evenly over the roller path with a minimum of friction.

5

SPLIT SECOND CLUTCHES

assure velvety smooth, shock absorbing action that allows constant and precise control of the load. Operation is easier.



6

HYDRAULIC BRAKES

are full floating type with full wrap. 30% greater braking surface provides greater holding power, smoother action, longer wear.

7

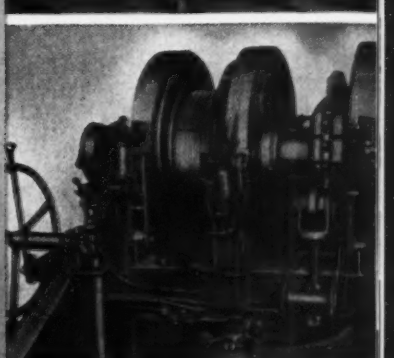
BOOM HOIST

adjusts boom quickly to any working angle. Operation is triple safe. Crane boom and load may be raised together or independently. Load lowering is unexcelled for speed and accuracy.

8

P&H's MAIN DRUM ARRANGEMENT,

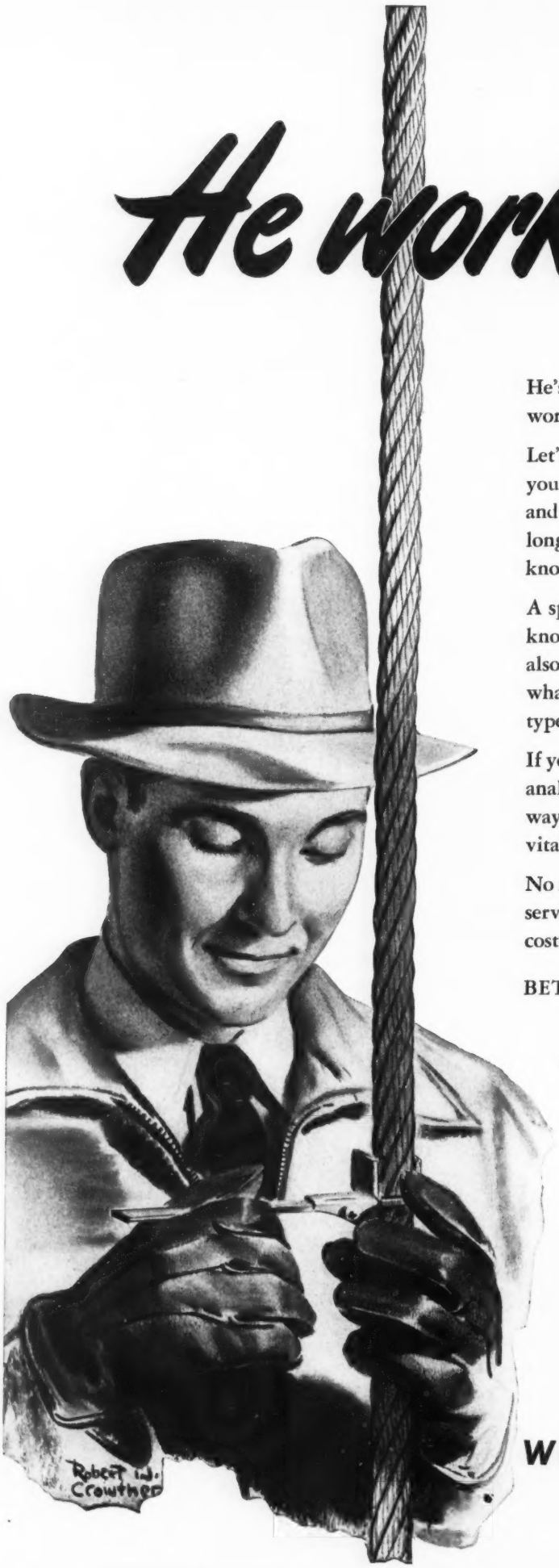
combined with front end attachments, makes it easier and quicker to change over from one type of service to another, such as for shovel, dragline, crane, trench hoe, pile driver, etc.



★
★
★

Why not learn about all the added values P&H offers the excavator buyer? See your nearest P&H Dealer or write us for complete information.

He works for you



He's a field engineer specializing in wire-rope problems. He works for Bethlehem, but he also works for you.

Let's say you operate machinery that uses wire rope. Maybe you haven't been getting maximum service from your lines and don't even realize it. Maybe they haven't been lasting as long as they should, and it's costing you money, whether you know it or not.

A spot like that is where the Bethlehem man can help. He knows wire rope, all the many sizes and types and grades. He also knows the kind of machines you use—how they work, what they do; why they need a certain lay of rope, a certain type of core.

If you'll ask him to study your needs, he'll give you a prompt analysis and recommend the proper ropes. He'll show you ways to get the most out of them. Both are points that have a vital bearing on rope life and efficiency.

No matter where you are, the Bethlehem man is glad to be of service to you. Call him in whenever you need him...doesn't cost you a penny.

BETHLEHEM STEEL COMPANY, BETHLEHEM, PA.

On the Pacific Coast Bethlehem products are sold by
Bethlehem Pacific Coast Steel Corporation
Export Distributor: Bethlehem Steel Export Corporation

When you think WIRE ROPE ...think BETHLEHEM

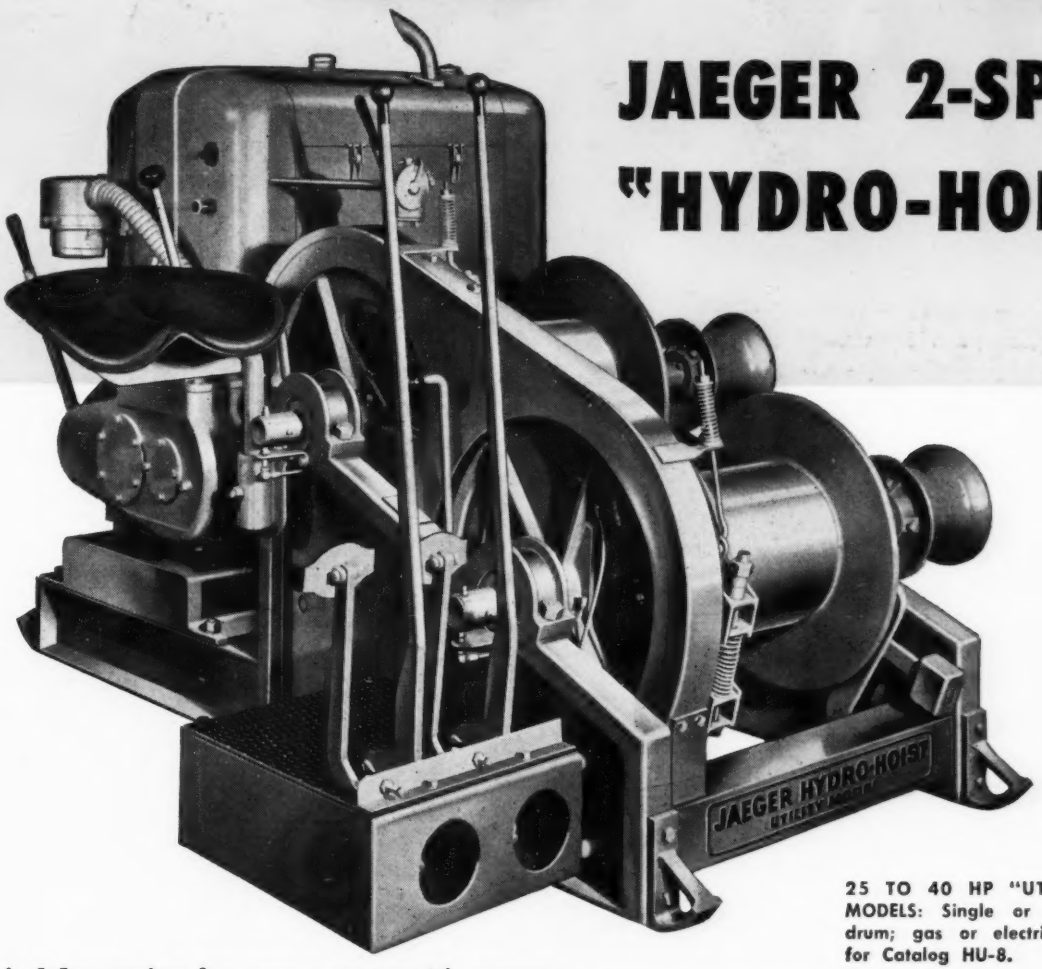
2 SPEEDS

Just shift a lever to "Low Gear" for power, "High Gear" for speed with lighter loads.

HYDRAULIC FINGER-TIP CONTROL

for faster, easier, more accurate operation — just like $25,000 cranes.

JAEGER 2-SPEED "HYDRO-HOIST"

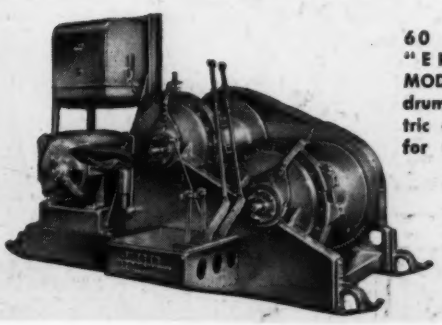


25 TO 40 HP "UTILITY" MODELS: Single or double drum; gas or electric. Ask for Catalog HU-8.

It's labor-saving for your operator; it's money-making for you! With Jaeger hydraulic controls at his finger-tips the hoist operator "feels" his load perfectly but never has to fight its weight. He handles the work faster, places it more accurately—sets your whole job a quicker pace.

2-Speed Automotive Transmission has a double advantage—(1) gives you the flexibility of low and high gear performance; (2) permits quick interchangeability of power from gas or diesel engine to squirrel cage electric motor, all at standard 1800 rpm.

All-steel construction (no more broken side frames or drum flanges), instant releasing hydraulic clutches with single outside adjustment, air-cooled hydraulic brakes, many other advanced features. See your Jaeger distributor, or ask for Catalog.



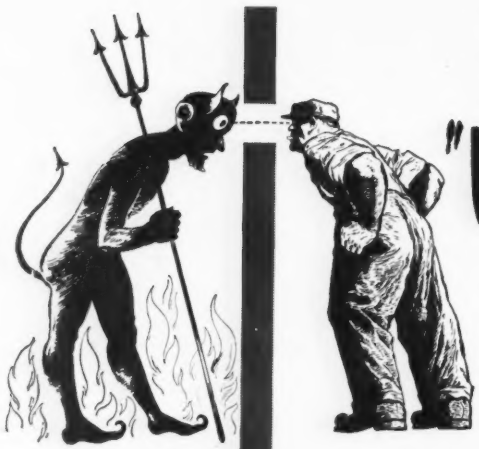
60 TO 100 HP "ERECTORS" MODELS: Up to 3 drums; gas, electric or diesel. Ask for Catalog HE-8.

THE JAEGER MACHINE CO.,

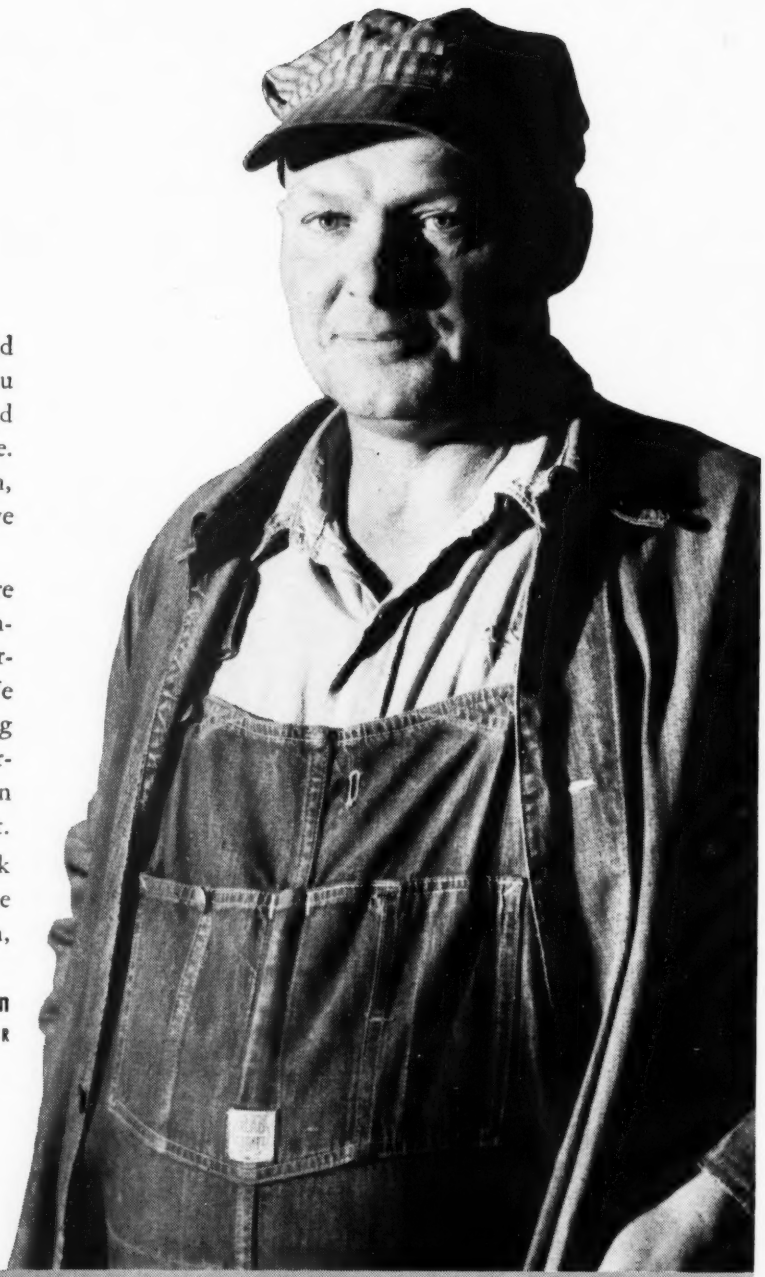
COLUMBUS 16, OHIO

regional offices: 1504 Widener Bldg. Philadelphia 7 · 226 N. La Salle St. Chicago 1 · 235 American Life Bldg. Birmingham 1

PUMPS • AIR COMPRESSORS • TOWERS
PAVING MACHINES • MIXERS • TRUCK MIXERS



"What does 2700° look like?"



WHEN you've worked around cement burning kilns for 15 years, as I have, you get so you can glance through a peep-hole and judge the inside temperature accurately by eye. But here at Cumberland that's not good enough, because we've found you never can be positive your eye isn't playing tricks.

To make sure the raw limestone and clay are being properly burned, we refer constantly to sensitive instruments that register the exact temperature at all times within each big rotary kiln. We hold the temperature around 2700°—eliminating the possibility of "over-burning" or "under-burning" and assuring maximum strength in every barrel of finished Cumberland Cement.

What does 2700° look like when you peek through the peep-hole? Well, there's only one answer to that. If you'll pardon the expression, it looks like Hell.

Rufus Sherman
BURNER

Cumberland Cements

Cumberland

PORTLAND CEMENT COMPANY

Chattanooga Bank Building • • Chattanooga 2, Tenn.

Portland — High Early Strength — Air Entraining — Masonry

YOU can't afford to miss the *Road Show!*

JULY 1948
TUES. WED. THURS. FRI. SAT.
1 2 3
7 8 9 10
13 14 15 16 17
18 19 20 21 22 23 24
25 26 27 28 29 30 31
Mark your calendar!
Make your plans!

and for timely, authoritative coverage of . . .
innovations in road-building practice, industry trends, and pre-Road Show news
YOU CAN'T AFFORD TO MISS
CONSTRUCTION METHODS'
July Annual Road Builders' Number
and
ENGINEERING NEWS-RECORD'S
Annual Highway Number—out July 8

BETTER ROADS FOR A BETTER WORLD
45th Annual Convention and Road Show
SOLDIER FIELD CHICAGO
JULY 16-24, 1948
AMERICAN ROAD BUILDERS ASSOCIATION

No matter how busy you are . . . it will pay you to drop everything — July 16 to 24 — and ride, drive, or fly to the big 1948 Road Show in Chicago.

Here — *in one place, at one time* — you'll have an opportunity to see and compare all the latest developments in roadbuilding equipment and methods. You'll also have a chance to pick up vital information on planning, organization and costs . . . *facts you must have to keep pace with changing conditions in the construction industry.* But remember, this is the first Road Show in 8 years . . . everybody's going to be there . . . so don't put it off! Make *your* plans and reservations NOW!

QUICK FACTS

- A 9-day opportunity to "catch up" on all that's new in road-building.
- 30 football fields of latest post-war equipment — displayed AND OPERATED out-of-doors.
- Down-to-earth discussions by world-famous roadbuilding authorities.
- A chance to meet old friends . . . make new contacts.

45th ANNUAL CONVENTION and INTERNATIONAL ROAD SHOW . . .

SOLDIER FIELD, CHICAGO, JULY 16-24, 194

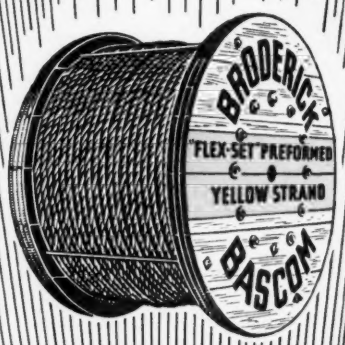
ENGINEERING NEWS-RECORD . . . CONSTRUCTION METHODS
NEW YORK 18, N. Y.

Remember the YELLOW

in the name *Yellow Strand*

Remember the YELLOW

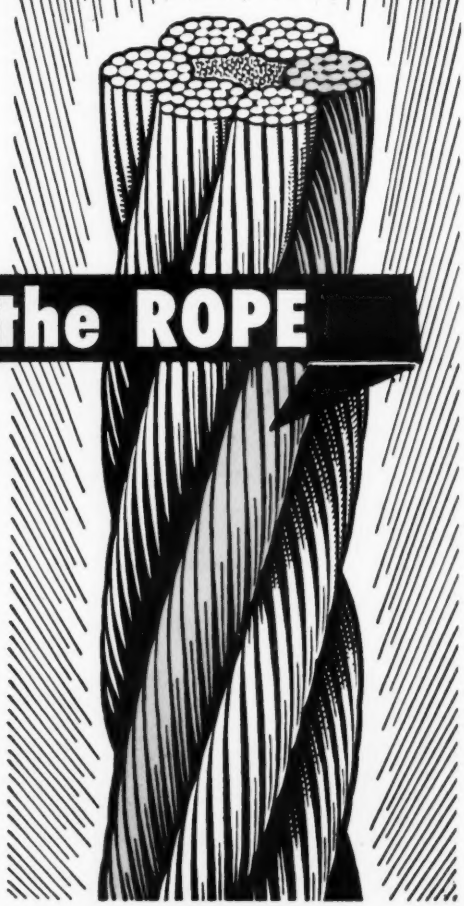
on the reel



But most of all...

Remember the

Yellow Strand in the ROPE



Broderick & Bascom Rope Co., St. Louis

Branches: New York, Chicago, Houston, Portland, Seattle

Factories: St. Louis, Seattle, Peoria

Curved offset edge for better penetration — better boiling action — better balanced loads.

Four speeds forward — up to 18 m.p.h. — more trips per hour — more profit per job.

LaPLANT-CHOATE MOTOR SCRAPERS

Positive, complete ejection of any kind of material saves seconds and minutes each trip.

. . . produce more yards at lower cost

because THEY CONSISTENTLY GIVE YOU MORE HOURS OF TROUBLE-FREE PERFORMANCE!

With an absolute minimum of working parts, easy, trouble-free operation and maintenance assures a unit that will work hour after hour without costly down-time.

Simplicity of controls means easy operation. Double-acting hydraulic steering assures safe, positive steering with 60° turns each way without danger of jackknifing.

Improved, air-actuated LPC power control unit operates scraper with peak efficiency. Sixteen horsepower per struck yard of capacity for "plenty of power," up and down grade, in any material.

The scraper units are modern LPC scrapers which have been proved, by competitive test, to be the easiest loading, fastest spreading scrapers on the market!

See your nearest LPC distributor for complete details and operating data. LaPlant-Choate Manufacturing Co., Inc., Cedar Rapids, Iowa; 1022 77th Avenue, Oakland, California.

LaPLANT-CHOATE

HIGH SPEED EARTHMOVING EQUIPMENT

FOR LOWEST POSSIBLE COST PER YARD..PER JOB..PER YEAR

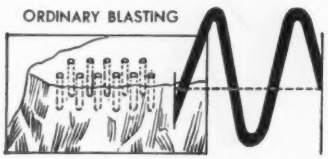
BETTER ROADS 45th Annual Convention and Road Show SOLDIER FIELD CHICAGO JULY 16-24, 1948

No Wonder They Call It "Ripple" Blasting!

ROCKMASTER

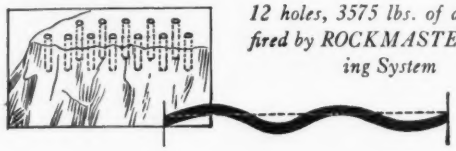
Smooths Waves Into Ripples

ORDINARY BLASTING



11 holes, 3300 lbs. of dynamite fired by ordinary methods

ROCKMASTER BLASTING



12 holes, 3575 lbs. of dynamite fired by ROCKMASTER Blasting System

As the Seismograph Will Show

An independent research engineer has invented his own nickname for the ROCKMASTER system of blasting: he calls it "Ripple" Blasting. Hundreds of enthusiastic ROCKMASTER users—miners, quarry and construction men the country over—will be quick to agree that it is an apt name.

Watch a ROCKMASTER quarry type blast and you will see how the face "ripples" before falling directly where the blaster has indicated he wants it.

Listen to a ROCKMASTER blast and you will hear how vibration has been cut down to "ripples" instead of objectionable waves of noise and vibration that stir up complaints in the neighborhood.

No Special Equipment Needed

ROCKMASTER results are accomplished through proper choice and loading of explosives and the use of ROCKMASTER electric detonators. The blast is split up into smaller blasts staggered milliseconds apart. No special equipment is needed. It's the effective use of "timing" that produces these money-saving results:

1. *More rock ready for the shovel.*
2. *Better fragmentation*—less secondary blasting.
3. *Far less "back-break"* in quarries. Less pulverizing of coal in strip pits.
4. *Wider spacing of drill holes* can frequently be used, saving drilling costs and explosives costs.
5. *Better control of "throw."*

Call in the Atlas representative today. He will be glad to give you the benefit of Atlas pioneering in millisecond delay blasting.

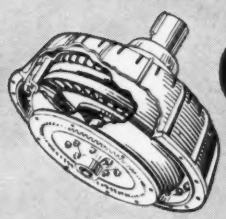
"ROCKMASTER"—Trade Mark
Manasite: Reg. U. S. Pat. Off.

ATLAS EXPLOSIVES *"Everything for Blasting"*

CHEMICALS ATLAS EXPLOSIVES

ATLAS POWDER COMPANY, Wilmington 99, Del. • *Offices in principal cities* • *Cable Address—Atpowco*

THE "820" IS ALWAYS *ready for rock*...BECAUSE THE HYDRAULIC CLUTCH



Absorbs Shock

The inevitable and unavoidable shocks and impacts, resulting from heavy-duty digging never faze the Lorain-820 because its Hydraulic Clutch absorbs and cushions the costly strains and stresses on the mechanism and cables.

Reduces Vibration

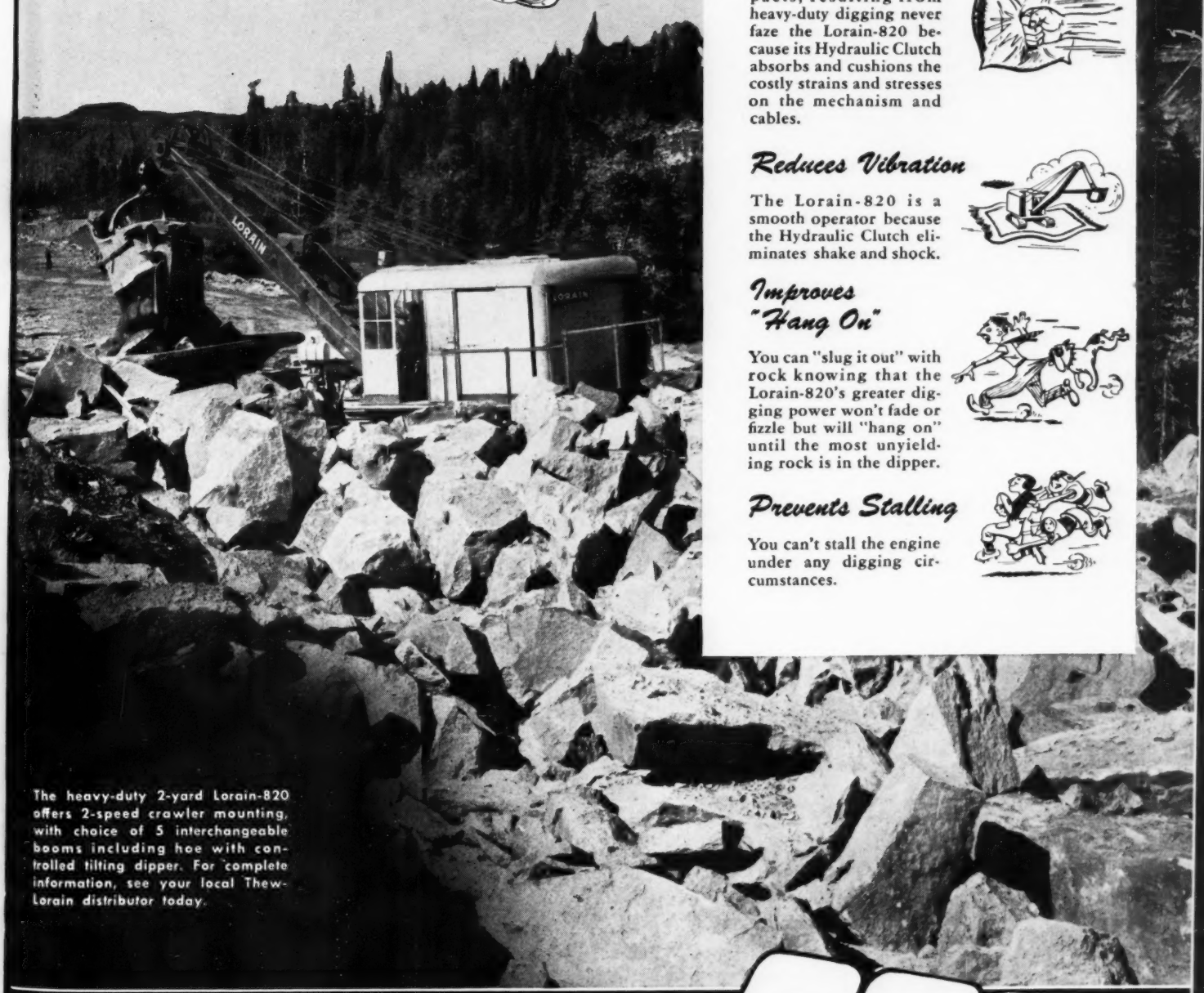
The Lorain-820 is a smooth operator because the Hydraulic Clutch eliminates shake and shock.

Improves "Hang On"

You can "slug it out" with rock knowing that the Lorain-820's greater digging power won't fade or fizzle but will "hang on" until the most unyielding rock is in the dipper.

Prevents Stalling

You can't stall the engine under any digging circumstances.



The heavy-duty 2-yard Lorain-820 offers 2-speed crawler mounting, with choice of 5 interchangeable booms including hoe with controlled tilting dipper. For complete information, see your local Thew-Lorain distributor today.

THE THEW SHOVEL COMPANY • LORAIN, OHIO

Thew **Lorain® 820**

HOW TO MAKE YOUR BUDGET DOLLAR GO FARTHER

HUBER 3-WHEEL ROLLERS
Automotive type, built in sizes from 5 to 12 tons. A fast, economical and powerful machine.

HUBER MAINTAINER
A versatile machine that also serves as a bulldozer, lift-loader, patch roller, snow-plow, or rotary broom.

HUBER TANDEM ROLLERS
Variable weight offering maximum maneuverability. Built in sizes from 3 to 12 tons.

SEND FOR BULLETINS
describing the Huber Road Machinery in which you are particularly interested. Write us today!

The answer is simple. All you need is Huber Road Machinery with its reputation for speedy operation . . . plenty of power and stamina . . . maximum time and money saving economy . . . dependable performance . . . long life service. Drop in and see your nearest Huber distributor. Let him show you why Huber Road Machinery should be working for you. Let him tell you about the many important features built into these fast machines. If you would, your next road machinery will be Huber.

THE HUBER MFG. COMPANY • MARION, OHIO, U. S. A.

HUBER

3 Wheel • Tandem
ROAD ROLLERS *and* MAINTAINERS

TO THE JOB FASTER!

For "SHOP QUALITY" WELDING ON THE JOB

THE NEW WESTINGHOUSE FLEXARC RANGER ENGINE DRIVEN WELDER

. . . portable or skid-mounted

For construction and erection work, the new Flexarc Ranger is the answer for getting there fast . . . for getting welding jobs done better, faster and cheaper. It's a smaller, lighter, sturdy engine-driven welder for "shop quality" welds on field jobs where electric power isn't handy or available.

Easily towed at high speed, maneuverable over rougher terrain, it can be put to work in places formerly inaccessible with larger, heavier equipment.

Big welder performance at lower operating cost is provided over the same range of welding current as on similar ratings of heavy-duty industrial welders. Powered by a 4-cylinder Hercules industrial engine, it has a rating of 200 amps, 30 volts, 50% duty cycle, with a welding current range of 20 to 250 amperes.

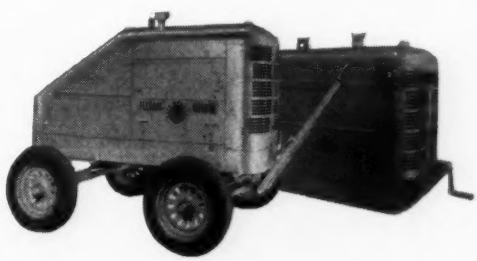
Running gear is 2-wheel, spring-mounted, pneumatic-tired, standard road gauge. Unit is also available without running gear for stationary mounting.

For information on the Ranger and other Flexarc Welders, call your nearby Westinghouse office or write Westinghouse Electric Corporation, P.O. Box 868, Pittsburgh 30, Pennsylvania.

J-21468

Westinghouse Heavy-duty Engine-driven Welders . . .

These welders are built for hard, continuous service wherever electric power is not available. Single, preset current adjustment gives the exact welding current desired without drop-off. Available in 200, 300 and 400-ampere ratings, gasoline powered . . . 300-ampere, Diesel powered . . . supplied with either bedplate or wheels.



Westinghouse FLEXARC

PLANTS IN 25 CITIES . . . OFFICES EVERYWHERE

WELDERS AND ELECTRODES

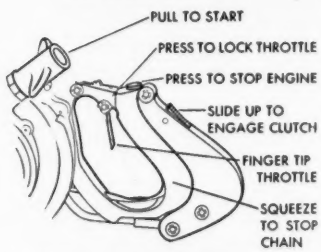
NEW! DISSTON
ONE-MAN CHAIN SAW
with Mercury Gasoline Engine

Patents Pending

SERVICE PROVEN . . .
A time and money saver

Use it for light felling and bucking, for limbing, and construction timber cutting.

CENTRALIZED CONTROL



Here's a ONE-MAN Chain Saw with everything you could ask for. It has extra power and cutting speed. It's compact, well-balanced, light in weight. It's safe and easy to handle, simple to operate. Delivers full power with saw held at any angle . . . engine operates equally well upside down or in any position. Will stand up long in hard, steady work. It bears the Disston name . . . carries the Disston guarantee . . . your assurance of top quality in every detail.

RUGGEDLY BUILT FOR TROUBLE-FREE SERVICE

Use the Disston ONE-MAN Chain Saw on any kind of cutting within its 18″ capacity. You'll say, as so many others are saying, "It's a real engineering achievement." Examine its special features. 2-cycle, 3½ h.p. at 4000 r.p.m., air-cooled engine with precision built anti-friction bearings on all rotating parts. Fuel meter gives automatic fuel feed and also acts as engine speed governor. Built-in Automatic Chain Lubricator. Crankshaft type magneto, doubly protected against dirt and moisture.

Clutch is positive, quick acting, manually controlled. Guide Rail and cutting chain of Disston Steel, hardened and tempered. Chain fully interlocked . . . won't buckle. Replaceable air cleaner and fuel filter. Magnapull starter. All these and many other features combine to give you a ONE-MAN Chain Saw you can count on for dependable performance under all operating conditions.

ESTABLISHED 1840
REG. U.S. PAT. OFF

When you buy a Disston product . . .
You buy Disston Steel, Skill and Service.

Write today for further particulars

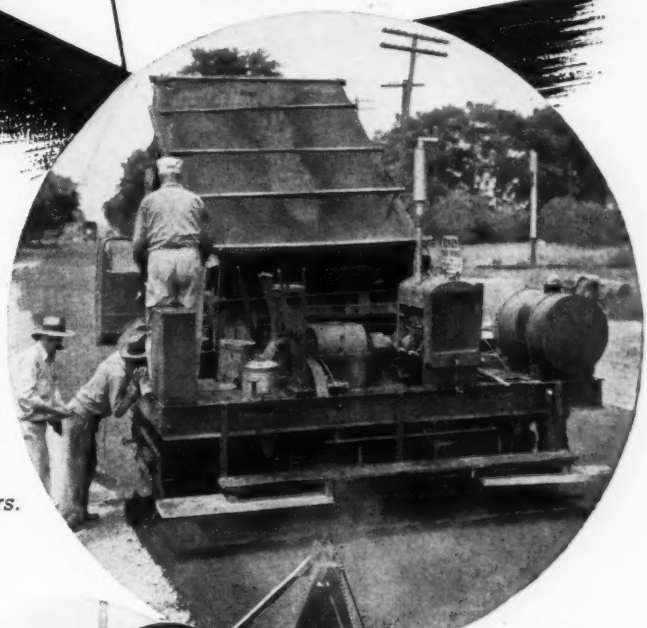
Notching for felling. Note perfect balance because of design and position of handle.

HENRY DISSTON & SONS, INC., 648 Tacony, Philadelphia 35, Pa., U. S. A.

Canadian Factory: 2-20 Fraser Ave., Toronto 1, Ont.

LOOK US UP AT THE ROAD SHOW

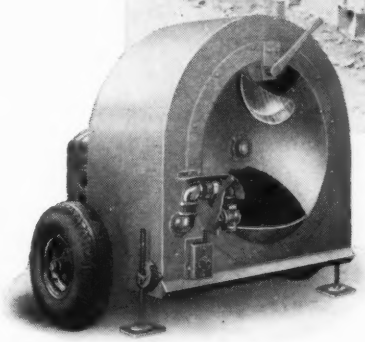
BOOTH 3106
South Concourse



We'll be there ready for your questions; all set for you to look us over. We'll be in operation—running with the wheels going 'round so you can see MultiFoote simplicity, Adnun Screed action and the unusual mixing action of the Kinetic Asphalt Mixer. We will all be there, the big Duomix (Double Drum) 34-E Concrete Paver, the MultiFoote Single Drum 34-E Paver, The Adnun Black Top Paver and the Foote Kinetic Asphalt Mixer.

Look us over July 16-24 at Soldier Field, Chicago, Booth 3106, South Concourse. We invite you to make *Our Booth Your Headquarters.*

THE FOOTE COMPANY, INC.
1910 State Street Nunda, New York



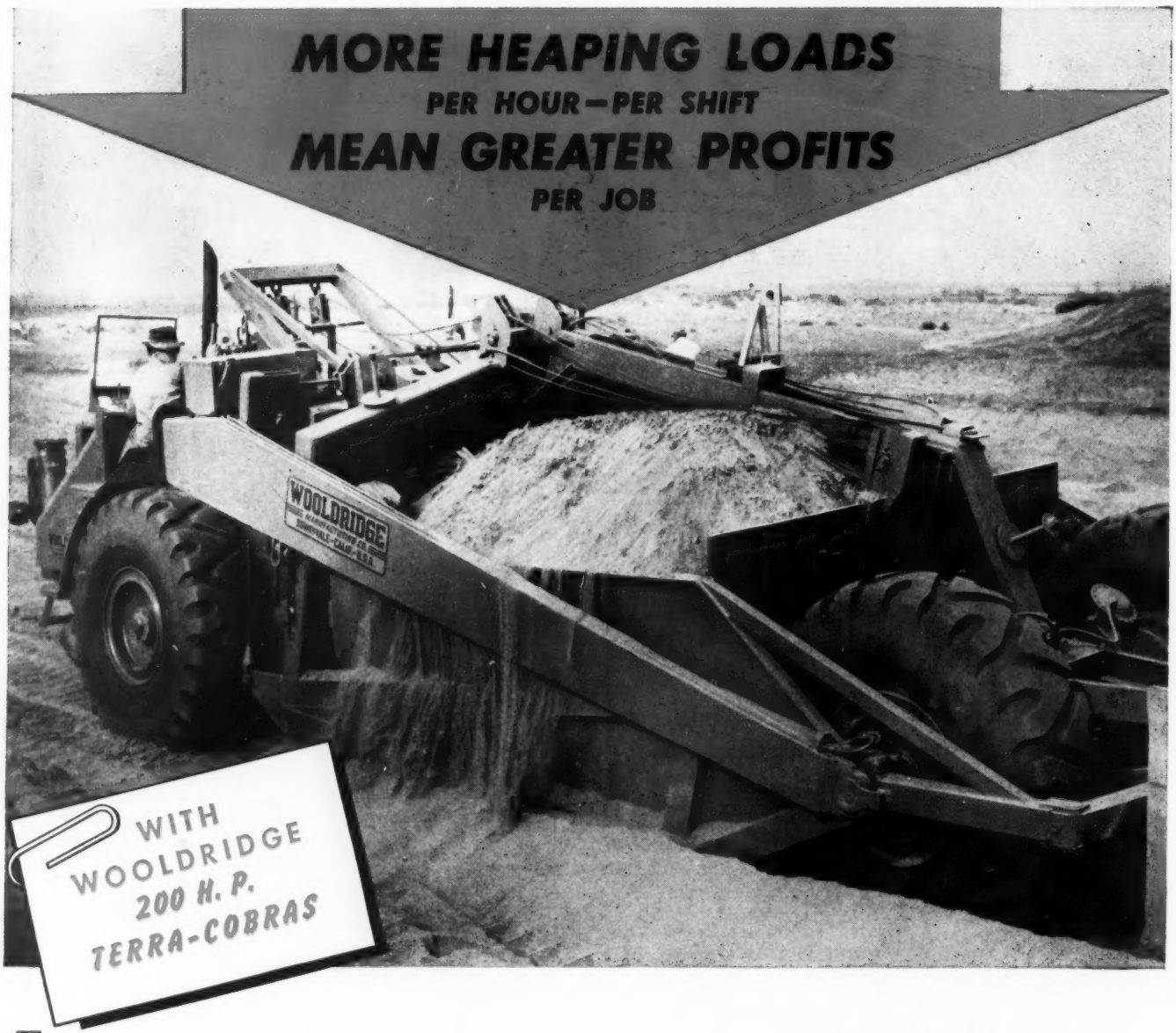
BETTER ROADS FOR A BETTER NOW 45th SOLDIER FIELD CHICAGO JULY 16-24, 1948

FOOTE

MULTIFOOTE CONCRETE PAVERS
ADNUN BLACK TOP PAVERS
Kinetic ASPHALT MIXERS

SEE PAGE NO. 130

MORE HEAPING LOADS
PER HOUR—PER SHIFT
MEAN GREATER PROFITS
PER JOB



FASTER LOADING of larger heaping loads, trip after trip with less down-time; faster hauling, spreading and dumping, plus faster return trips with Wooldridge Terra-Cobras; add up to higher total yardages moved, at lower cost and greater profit. That's why more and more contractors are turning to Wooldridge Terra-Cobras and Wooldridge earthmoving equipment. Wooldridge Terra-Cobra is built to move more dirt, even on the toughest jobs. The many proved features of the Terra-Cobra such as two wheel steering, Universal oscillating pivot, independent three line cable control have revolutionized self propelled high speed earthmoving operations. Get full details today and bid your jobs on Terra-Cobra's productive performance.

See the 200 H. P.

WOOLDRIDGE

TERRA COBRA

AT THE ROAD SHOW

JULY 16-24

WOOLDRIDGE MFG. CO.

SUNNYVALE CALIFORNIA, U.S.A.

ALSO FEATURED AT THE ROAD SHOW

The Complete line of Wooldridge Equipment

GET THE MOST OUT OF YOUR JOBS WITH WOOLDRIDGE EQUIPMENT

SCRAPERS

BULLDOZERS

RIPPERS

POWER CONTROL UNITS

TRAILBUILDERS

"QUICK-WAY" TRUCK SHOVELS

REG. U. S. PAT. OFF

Always DEPENDABLE

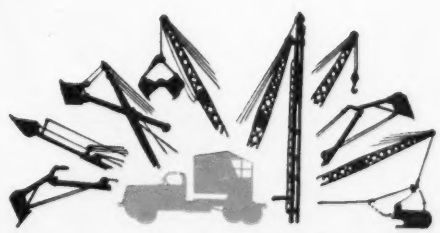
Yes, "***QUICK-WAYS***" are dependable—and economical, quick and profitable to you. "***QUICK-WAY'S***" accurate balance and strength with light weight permit higher travelling and working speeds, more yardage per day. Simplicity of design and quality steel construction give longer working life, lower operating and maintenance costs, lower initial cost and easier servicing. There's a "***QUICK-WAY***" owner near you, ask HIM.

1 **Wherever a truck can go, and at truck speed, that's where you can take a "*QUICK-WAY*." Low center of gravity and proper balance does it.**

2 **Speed on the job moves more material per day at less cost—a "*QUICK-WAY*" gets around *fast*.**

3 **First in the field and still the leader, "*QUICK-WAYS*" have gotten around more and longer than any other truck mounted power shovel.**

Service available from our distributors strategically located throughout the United States and worldwide



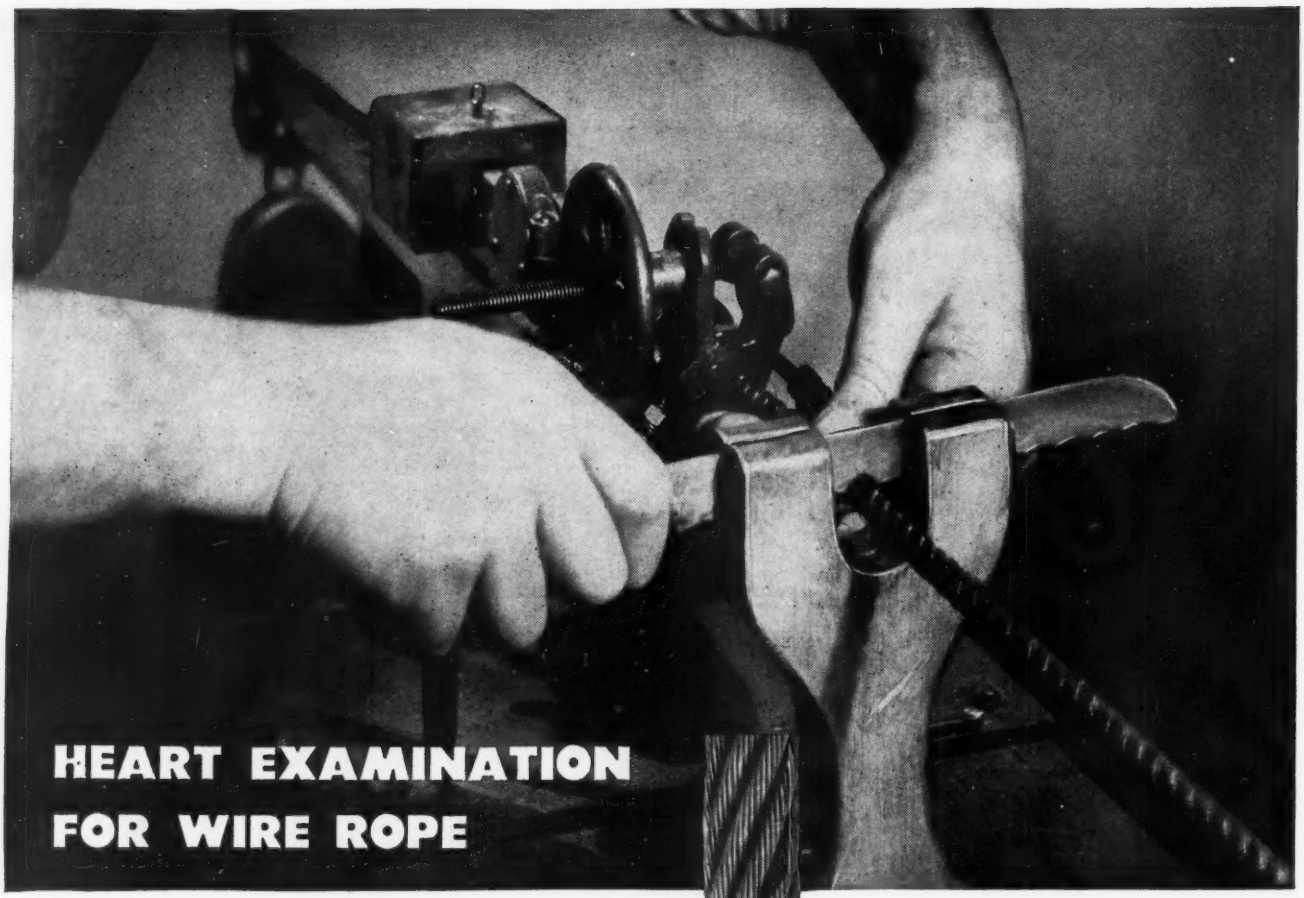
Model E: 4/10 cu. yd. cap., for mounting on any standard 5-ton truck.
Model J: 1/4 cu. yd. cap., for mounting on any standard 1½-ton truck.

"QUICK-WAY"

For speed, portability, economy of operation, and adaptability to a wider range of jobs, nothing of comparable size equals a "Quick-Way" Truck Shovel.

"QUICK-WAY" TRUCK SHOVEL CO.

DENVER, COLORADO



HEART EXAMINATION FOR WIRE ROPE

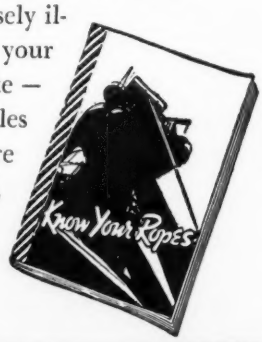
The fiber core in the heart of wire rope serves a fourfold purpose. It acts as a support for the wire strands. It provides flexibility. It cushions impact loads. It stores lubricant and feeds it to the strands during the life of the rope.

Because of these important functions, the centers used in Wickwire Rope must pass exhaustive tests at the cordage manufacturer's plant and in Wickwire's Testing Laboratory. Centers must be made of the highest quality fiber; absolutely uniform in diameter, density and length of lay. The rope must be lubricated to the point of saturation and, where called for, an identifying marker tape must be spun into the rope.

Tough specifications? Sure! But so are scores of other tests made during the manufacture of Wickwire Rope. That's why more and more rope users are finding out that you can't beat Wickwire Rope for performance, safety and long rope life. And as for service—Wickwire Distributors and Wire Rope Engineers in key cities everywhere are ready to help solve your wire rope problems and to provide prompt delivery of Wickwire Rope from strategically located warehouse stocks. Wickwire Rope is available in all sizes and constructions, both regular lay and WISSCOLAY *Pre*formed.

HOW TO REDUCE ROPE COSTS AND PROLONG ROPE LIFE

Thousands of wire rope users have found that the information packed in the pages of "Know Your Ropes" has made their work easier. It's full of suggestions on proper selection, application and usage of wire rope. It's easy-to-read and profusely illustrated. For your free copy, write — Wire Rope Sales Office, Wickwire Spencer Steel, Palmer, Mass.



WICKWIRE ROPE

A PRODUCT OF THE WICKWIRE SPENCER STEEL DIVISION OF THE COLORADO FUEL AND IRON CORPORATION

CF&I & SUBSIDIARIES

WIRE ROPE SALES OFFICE AND PLANT—Palmer, Mass. **EXECUTIVE OFFICE**—500 Fifth Avenue, New York 18, N. Y.

SALES OFFICES—Abilene (Tex.) • Boston • Buffalo • Chattanooga • Chicago • Denver • Detroit • Emlenton (Pa.) • Fort Worth • Houston • New York • Philadelphia • Tulsa

PACIFIC COAST SUBSIDIARY—The California Wire Cloth Corp., Oakland 6, Cal.

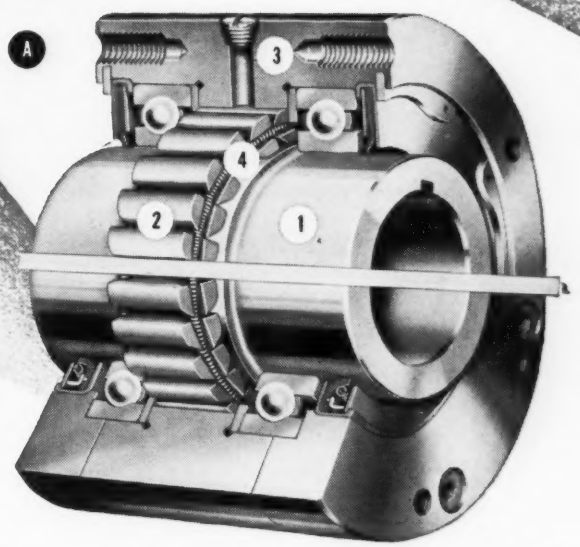
SPOTLIGHTING ★★★

a new and complete line of

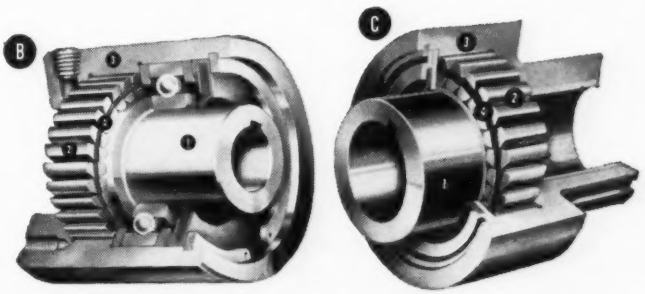
MORSE-FORMSPRAG

FULL COMPLEMENT OVER-RUNNING CLUTCHES

★ Instant Engagement
★ Instant Disengagement
★ Accurate Indexing
★ Positive Action



1. Inner Member 2. Sprag 3. Housing 4. Energizing Spring



1. Inner Member 2. Sprag 3. Housing 4. Energizing Spring

A new principle in clutches . . .

BORROWING an idea from the wooden sprag that oldtimers used to prevent wagons from rolling backward, yet allowing free forward motion — Morse-Formsprag Clutches have come forth with the ultimate in Over-Running Clutch design.

Each Morse-Formsprag Clutch contains a full complement of sprags between inner member and housing. Contact between sprags is maintained by a circular pressure spring which acts as an energizing medium.

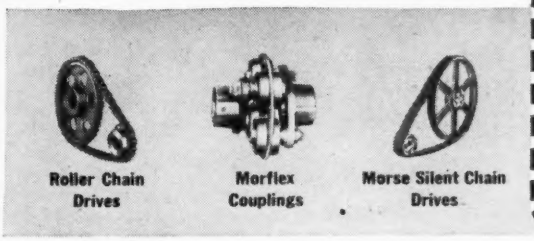
Because of the full complement of sprags used in Morse-Formsprag Clutches, localized stress is minimized. This design simplicity permits the greatest possible torque capacity for size and weight.

Three types of Morse-Formsprag Over-Running Clutches are available from stock—for indexing, over-running or backstopping:

A. All-Purpose Ball-Bearing Type.
B. Indexing and Backstopping Ball-Bearing Type.
C. Plain-Bearing Type.

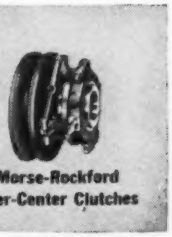
These three types are carried in stock with a variety of finished stock bores ready for immediate use. Special sizes and designs can be furnished to fit your requirements.

For detailed information, installation suggestions and ordering data, write Dept. 178 for Morse-Formsprag Catalog C11-42. Address: Morse Chain Company, 7601 Central Avenue, Detroit 8, Michigan.



MORSE
MECHANICAL
POWER TRANSMISSION
PRODUCTS

A PRODUCT OF B-W BORG-WARNER



MORSE CHAIN COMPANY • DETROIT 8, MICHIGAN

Medium Size Motor Grader

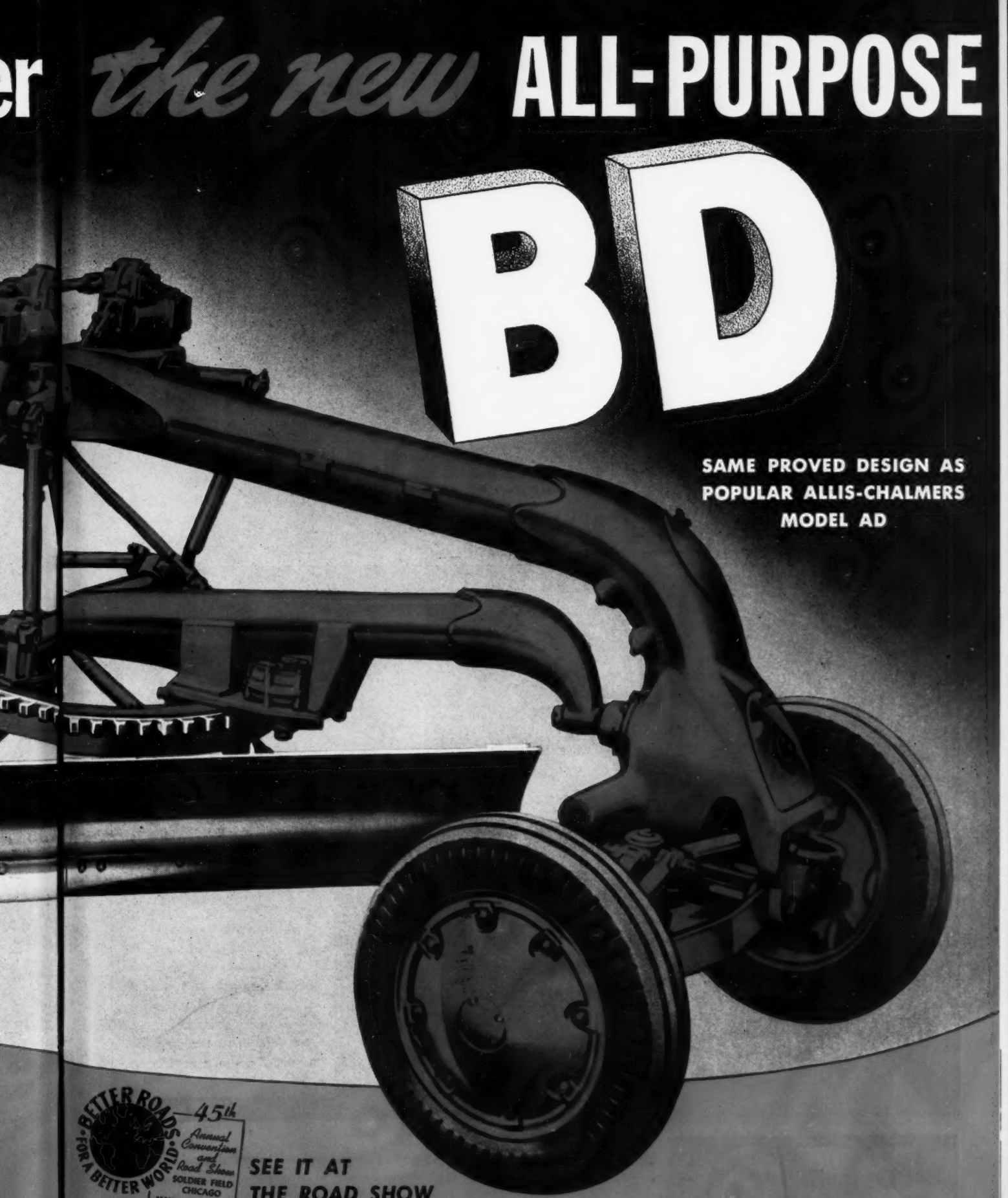
BRINGS YOU . . .
HEAVY-DUTY PERFORMANCE WITH NEW ECONOMY

- ✔ HORSEPOWER: 50.5 brake. General Motors 2-Cycle Diesel Power.
- ✔ WEIGHT: 17,300 lbs.— balanced for maximum traction and control.
- ✔ SPEEDS: Six forward—1.30 to 14.69 m.p.h. Three reverse—1.55 to 5.41 m.p.h.
- ✔ Exclusive Tubular Frame.
- ✔ 28-inch working throat clearance — 22-inch axle clearance.
- ✔ 12-foot "Roll-Away" Moldboard — 360° turning radius.
- ✔ Full Blade Visibility; Simplified Maintenance; Comfortable Platform; Rigid Steering Control.

LOW OPERATING COST • SUPERIOR PERFORMANCE • DEPENDABLE SERVICE

er *the new* ALL-PURPOSE

BD



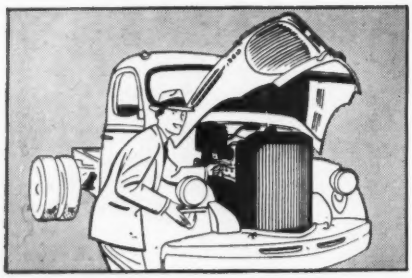
SAME PROVED DESIGN AS POPULAR ALLIS-CHALMERS MODEL AD

BETTER ROADS · FOR A BETTER WORLD · 45th Annual Convention and Road Show SOLDIER FIELD CHICAGO JULY 16-24, 1948

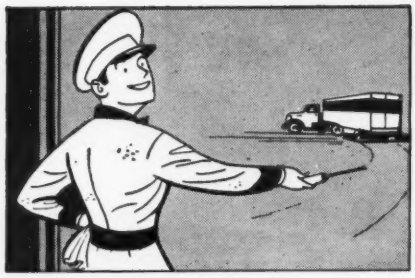
SEE IT AT THE ROAD SHOW

ALLIS-CHALMERS

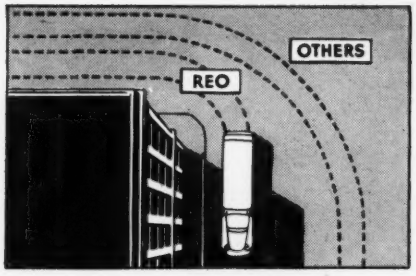
TRACTOR DIVISION • MILWAUKEE 1, U. S. A.



"I'm an operator who knows the score, because I'm using new Reo trucks in all sorts of jobs. Cross-country, interstate and local hauling—Reo does it better, faster, cheaper. See for yourself! Check with your Reo dealer before you order any truck!"



"Do we ever get those Reo trucks serviced and out in a hurry! No other truck has Reo's cowl-hinged hood that gives us so much working area. Reo stamina and durability makes a profit story your local Reo dealer will be glad to tell you about!"



"Ask any driver who entered the A.T.A. National Truck Roadeo—those who drove Reo trucks rolled over opposition to win all first and second place awards. Put this record of Reo ease of maneuverability into practice. It means better truck performance."

More of everything from this great REO line!

Want more driving maneuverability? More power? Better service accessibility? A more compact unit that handles *full payload?*

Then take a look at the new 1948 Reo trucks rolling off the assembly line at Lansing, Michigan. There's plenty of proof of all-'round Reo ability. Look at Reo More-Load design that gives you shorter wheelbase for handling ease and sharper turning radius; see the Reo full-vision windshield and big power-plus engine.

If that's not proof enough of Reo superiority, take this challenge:

See your Reo dealer and check Reo, feature for feature, unit for unit, before you order any truck!

Final inspection for brand-new Reo trucks as they roll off the assembly line. From the Reo Model 19 to the giant Model 31, there's a Reo truck to fit the job you want done. See your nearest Reo dealer now!

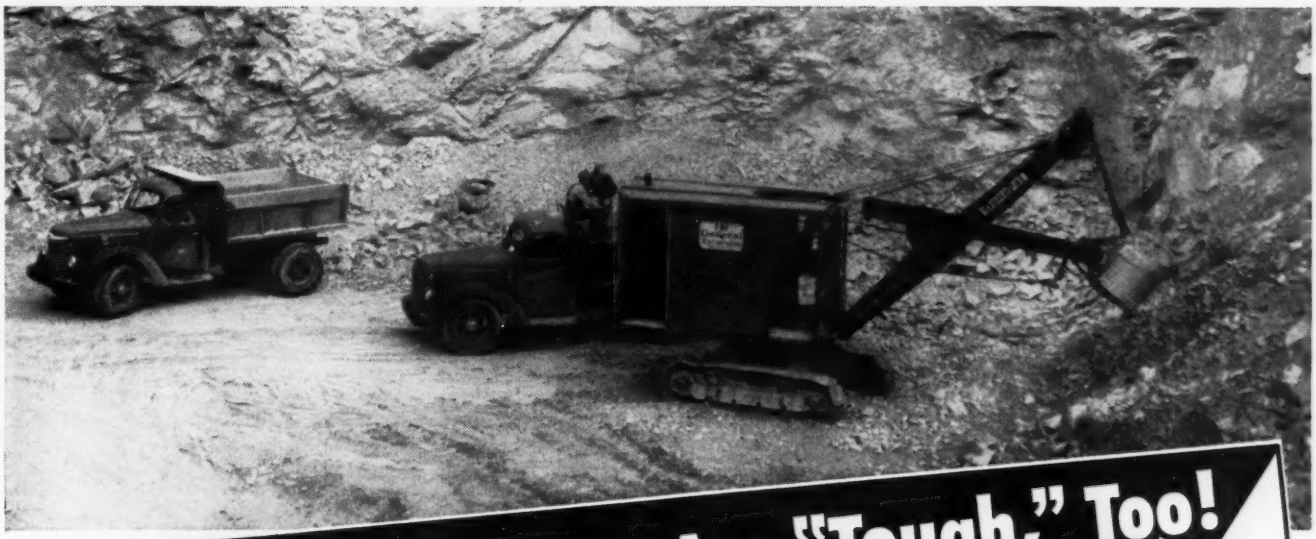
REO
TRUCKS AND BUSES

Reo engineers know that almost every operator has a different trucking problem. That's why Reo truck specialists offer you a wide choice of ready-to-roll truck and tractor chassis . . . with a wide variety of engines, transmissions, axles, wheelbases and cab-to-axle dimensions.

Stop in at your Reo Factory Branch, distributor or dealer; or write the factory direct for complete specifications on the new line of Reo trucks. **Reo Motors, Inc., Lansing 20, Michigan.**

See your REO dealer before you order any truck

This "Old-Timer" has Outlived Many Fleets of Trucks



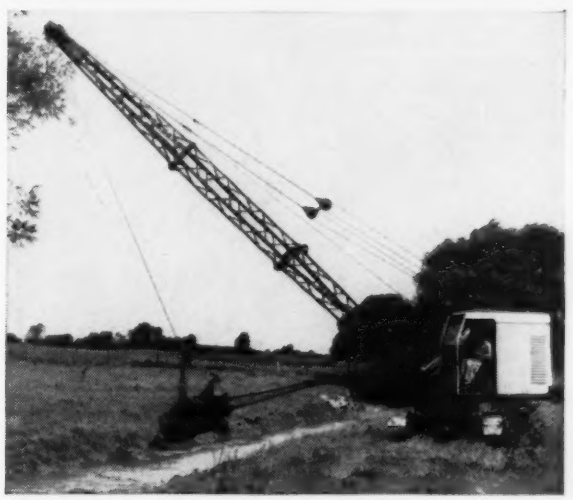
The New *Generals* Are "Tough," Too!

FIFTEEN YEARS AGO this ⅝-yard General was given a "tough" assignment—in the clay pit of Linhardt Bros., Mt. Sterling, Mo. Clay rock, so hard it has to be dynamited and so slippery when wet you can't get a footing on it, is difficult to handle. Slick, heavy, rolling boulders are elusive . . . hard for an operator to pick up.

But this old General has been doing the job satisfactorily, efficiently, ever since it started. It still takes a full dipper every swing—can load a 5-yard truck with only seven passes. During its long service, Linhardt Bros. have replaced truck fleets many times, but the General keeps right on loading!

★

New Generals are "tough," too . . . give the same dependable performance, and, in addition, incorporate numerous advancements in construction and design that mean extra economy of operation, extra profits in use. Write for information and specifications.



POWER SHOVELS • CRANES • DRAGLINES • CLAMSHELLS • BACKHOES • PILE DRIVERS

THE OSGOOD CO. O-G THE GENERAL CO.

EXCAVATOR

MARION OHIO

DIESEL, GASOLINE OR ELECTRIC POWERED • ⅜ TO 2½ CU. YD. • CRAWLERS & MOBILCRANES

Your local distributor's

GOT WHAT IT TAKES

to keep your equipment working

YES — THE DISTRIBUTOR'S the doctor when it comes to curing equipment ills.

Next time one of your tractors won't make tracks, or one of your graders can't make the grade, just call your local distributor. If repairs are possible, chances are he can handle them — and fast! Here's why . . .

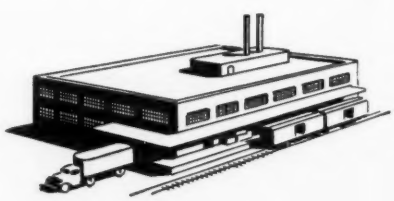
His *parts department* contains thousands of equipment items carefully stocked under the supervision of *parts experts* who know what's needed to meet your routine and emergency needs.

Experienced, factory-trained service men are quickly available to diagnose your equipment troubles, to effect necessary repairs on the job or, if "hospitalization" is required, in modern, fully equipped repair shops.

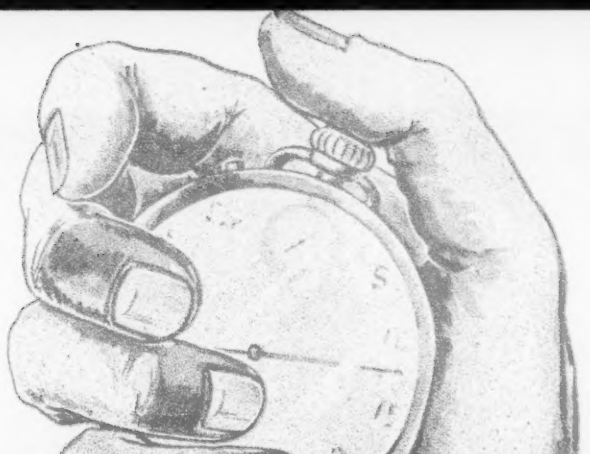
From planning to completion on every construction job, your local distributor offers you friendly, interested service . . . service that's efficient, fast, and economical . . . service designed to keep your equipment operation costs at a minimum, your construction schedules intact.

Take your equipment problems to your local distributor today and benefit from *service in action!*

Make Distributor's Headquarters
Your Service Headquarters



No. 8 in a series of advertisements
sponsored by ENGINEERING NEWS-RECORD and CONSTRUCTION METHODS
showing how distributor services aid economical construction



LOAD AND UNLOAD EQUIPMENT IN *Minutes* WITH THE TIP-TOP TRAILER

-TOP, the revolutionary new de-
opment in trailer design, elimi-
es all necessity for blocking, skid-
g or winching . . . makes loading
d unloading faster, safer, easier.
oduced but a few short months
, the ease and safety factors
nd **only** in TIP-TOP are so out-
nding that TIP-TOP Trailers are
eady serving several prominent
ustries and utilities.

addition to its exclusive features,
-TOP provides all the general
ity uses offered by any trailer.
ke pockets are standard equip-
nt and stakes and racks can be
plied on request so that practi-
y any type of material, such as
ber, steel, pipe, etc., can be
led.

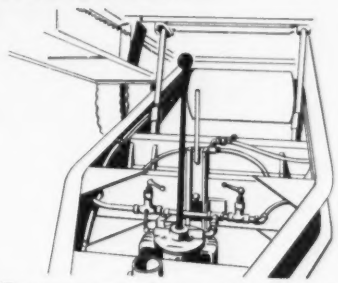
uries Invited from Qualified Distributors
Additional Information write for Folder

RTHUR REHBERGER & SON, Inc.

FERRY STREET, NEWARK 5, N. J.

VEHICLE MANUFACTURERS
FOR OVER 60 YEARS

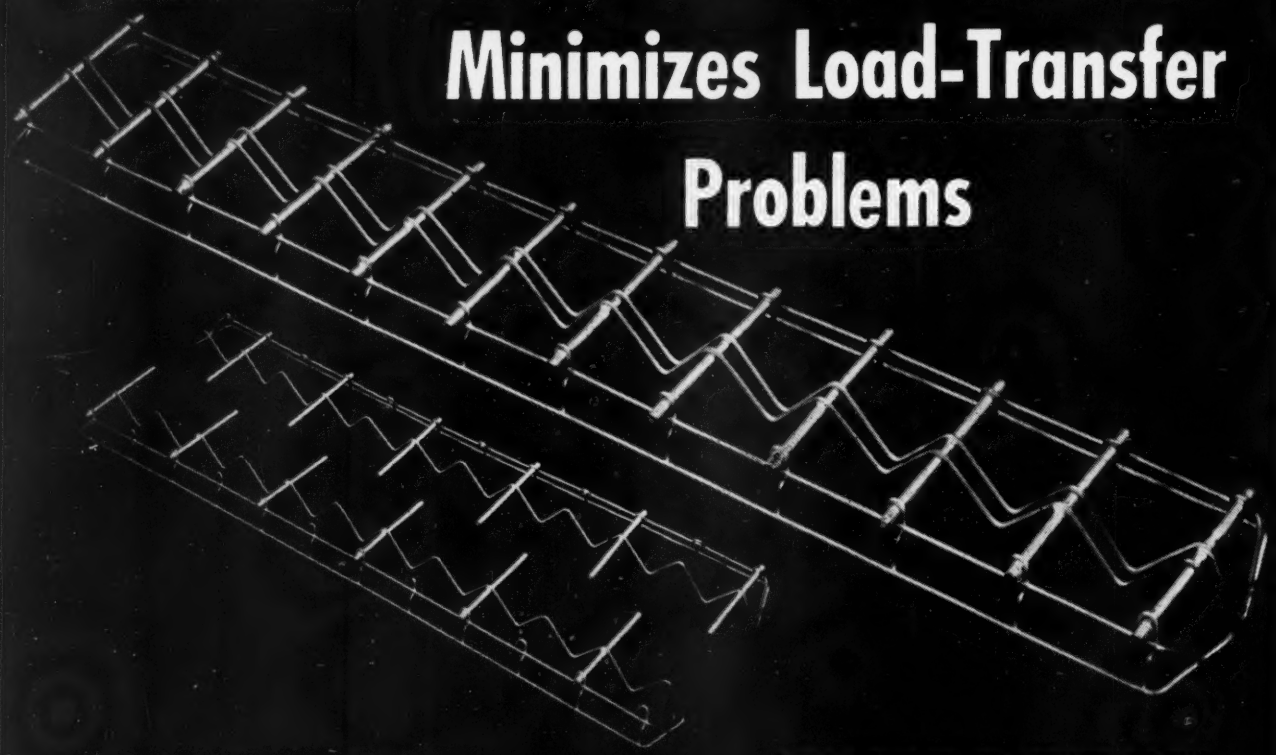
Close-up view of hydraulic controls and hand operated pump which lower tail skid and raise loading platform.



Equipment is driven on under its own power as shown in large illustration below. Release valve is then opened so that loading platform returns to its original horizontal position and locks. Tail skid is hydraulically raised to shorten overall vehicle length and serve as barrier for load. Same procedure is followed in unloading.

SPECIFICATIONS: Sturdily constructed with pressed steel frames, TIP-TOP Trailers are available in 7-ton capacity (single axle) and 12-ton capacity (tandem axle) and provide a liberal factor of safety for unavoidable overloads. Where desired, special capacity sizes can be made to specifications. Trailers are equipped with approved lights and reflectors, vacuum or air brakes and comply with all state laws.

Specially Designed DOWEL UNIT Minimizes Load-Transfer Problems



Unit consists of two identical sections. Note dowels welded to side frame and center wire. When used as expansion joint, filler is mounted on dowels of one section, then unit is reassembled.

Bethlehem Dowel Unit comes completely assembled, ready for use as contraction joint. Unit keeps dowels aligned in horizontal and vertical planes. Dowel tubes (not shown) permit movement of dowels in concrete.

Here's the road joint you've been looking for—a lightweight bar-dowel unit that is specially designed to minimize the load-transfer problems caused by heavy wheel loads.

Called the Bethlehem Dowel Unit, it consists of two identical sections, in each of which evenly-spaced dowels are rigidly welded to the side frame and center wire. The sections slide together quickly, and special tubes are then placed over the free ends of the dowels, allowing approximately 1 in. for expansion. The result is a unit which not only keeps the dowels accurately aligned in both horizontal and vertical planes, but also permits free movement of the dowels in the concrete.

The Bethlehem Dowel Unit saves time on the job, too, because it comes completely fabricated and assembled, ready for use as a contraction joint.

It can be handled easily by two men, and it also nests readily, making it economical to ship by rail or truck. It is adaptable to the designs and specifications of state highway departments, and can be used plain, as a contraction joint, or with the addition of joint filler, as an expansion joint.

All in all, the Bethlehem Dowel Unit is well worth looking into for highway or airport work. For details, contact the nearest Bethlehem sales office, or write to us at Bethlehem, Pa.

BETHLEHEM STEEL COMPANY, BETHLEHEM, PA.

On the Pacific Coast Bethlehem products are sold by
Bethlehem Pacific Coast Steel Corporation

Export Distributor: Bethlehem Steel Export Corporation

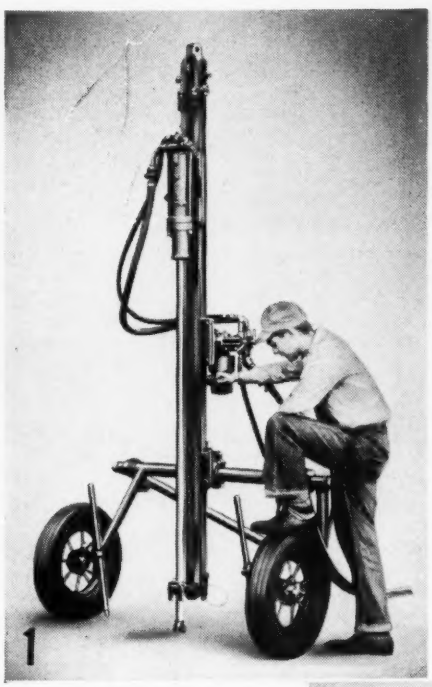
★ BETHLEHEM STEEL ★

STEEL for HIGHWAYS REINFORCING BARS • BAR MATS • GUARD RAIL • TIE-RODS
GUARD RAIL POSTS • WIRE ROPE AND STRAND • SPIKES • HOLLOW DRILL STEEL • BOLTS AND NUTS
FABRICATED STRUCTURAL STEEL • SHEET AND H-PILING • DOWEL UNITS • TIMBER BRIDGE HARDWARE

Demand the I-R CONTRACTORS' COMBINATION

Top quality machines that work as a team... Designed, built, sold and serviced by men who know rock excavation... Application "know-how".

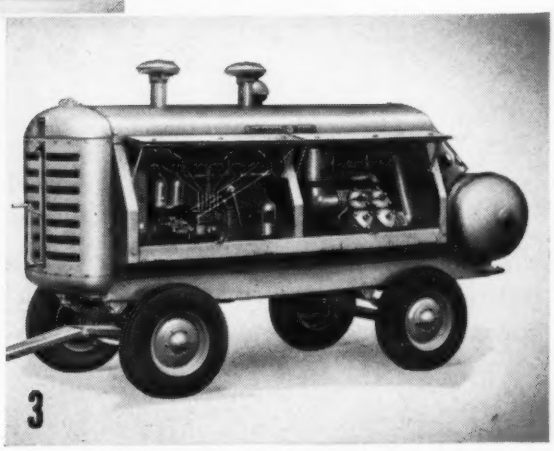
The I-R Team is a growing line of new and better Machines of Quality, such as—



1. ***New Wagonjack*** — a light one-man wagon mounting for light drifters and Jackhamers. New lows in drilling costs.

2. ***New Carset Jackbits***—with tungsten-carbide inserts for higher-speed, lower-cost drilling. Easier detachability, less gage wear, longer thread life, longer rod life.

3. ***New KA Mobil-Air Compressors*** —sizes 30 to 500 cfm—new features, new reliability, new economy.



MOBIL-AIR COMPRESSORS
STATIONARY COMPRESSORS
JACKHAMERS
DRIFTERS
STOPERS
WAGONDRILLS
PAVING BREAKERS
STUD JACKBITS
CARSET JACKBITS
DRILL SHARPENERS
STEEL FURNACES
JACK MILLS
JACKBIT GRINDERS
BACKFILL TAMPERS
CLAY DIGGERS
SUMP PUMPS
HOISTS
RIVETERS
CHIPPERS
GRINDERS
DRILLS
IMPACT WRENCHES
AIRLITE GENERATORS
PUMPS
DIESEL ENGINES
BLOWERS

Ingersoll-Rand

11 BROADWAY, NEW YORK 4, N. Y.

182-14

Gulf Quality Lubricants and Fuels

help contractor finish highway project

ahead of schedule

Pullen and Owens Company, Nashville, Tenn., recently completed the straightening of U. S. Highway #29 near Greensboro, N. C. The project involved 716,000 yards of excavation, 63 acres of clearing, 26 acres of grubbing, plus moving building units from the right of way, and the construction of over a mile of concrete pipe.

"DELAYED for several days by heavy rains, we were forced to push equipment to the limit on this job to finish ahead of schedule," says W. P. Owens of Pullen and Owens. "But every unit stood up—thanks to good maintenance with Gulf quality lubricants. Not a single major delay was chalked up to mechanical troubles. And Gulf fuels helped us get top engine performance."

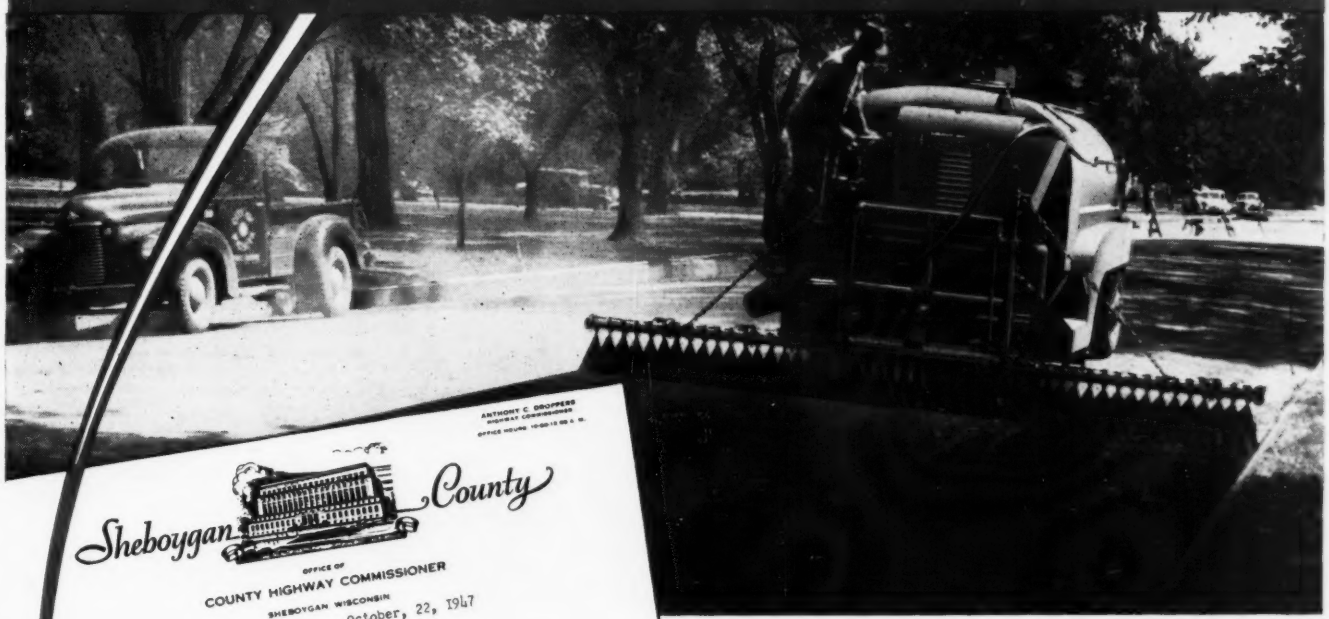
Pullen and Owens is one of many leading contractors that have adopted Gulf quality lubricants and fuels as basic job insurance—they know from experience that with Gulf products equipment performs better, stays on the job longer, and operates at lower expense for maintenance.

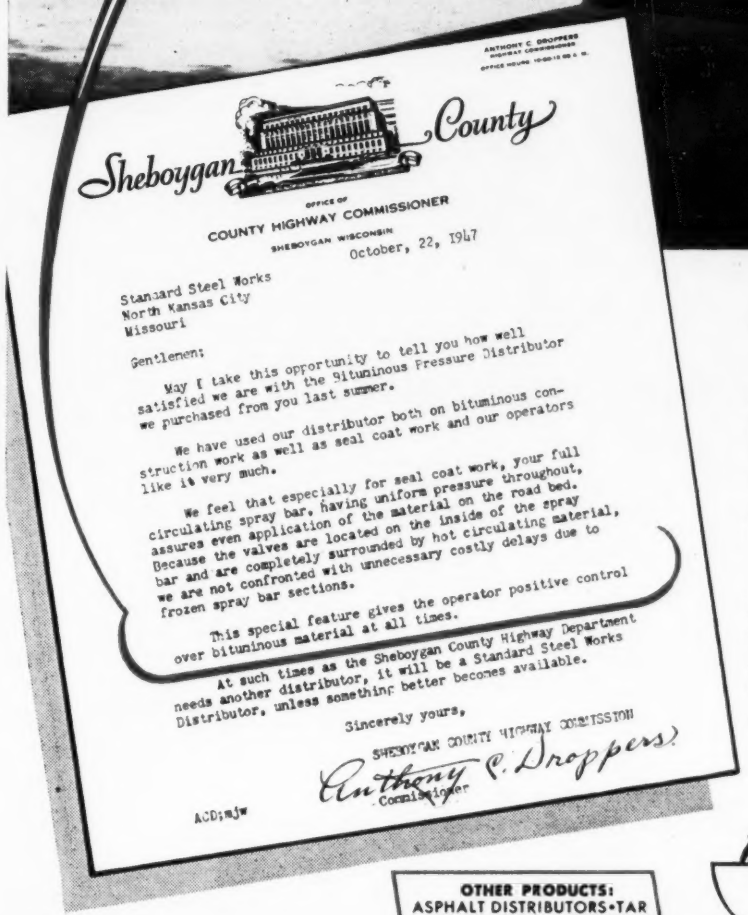
Gulf Oil Corporation
Gulf Refining Company

GULF

Division Sales Offices:
Boston · New York · Philadelphia
Pittsburgh · Atlanta · New Orleans
Houston · Louisville · Toledo

BITUMINOUS MATERIAL UNDER
POSITIVE CONTROL
.... at all times





Sheboygan County

OFFICE OF
COUNTY HIGHWAY COMMISSIONER
SHEBOYGAN WISCONSIN

October, 22, 1947

Standard Steel Works
North Kansas City
Missouri

Gentlemen:

May I take this opportunity to tell you how well satisfied we are with the Bituminous Pressure Distributor we purchased from you last summer.

We have used our distributor both on bituminous construction work as well as seal coat work and our operators like it very much.

We feel that especially for seal coat work, your full circulating spray bar, having uniform pressure throughout, assures even application of the material on the road bed. Because the valves are located on the inside of the spray bar and are completely surrounded by hot circulating material, we are not confronted with unnecessary costly delays due to frozen spray bar sections.

This special feature gives the operator positive control over bituminous material at all times.

At such times as the Sheboygan County Highway Department needs another distributor, it will be a Standard Steel Works Distributor, unless something better becomes available.

Sincerely yours,

SHEBOYGAN COUNTY HIGHWAY COMMISSION
Anthony C. Droppers
Commissioner

ACD:mjw

NO THIN SPOTS TO BREAK OR FAT SPOTS TO ROLL—

Absolute accuracy of Pressure and absolute temperature uniformity over every inch of the Standard Steel 24" full circulating spray bar, *assures even application on the road bed.*

PRODUCTION COSTS REDUCED— JOB COMPLETED ON TIME

No unnecessary and costly delays due to frozen spray bar sections—*every job is completed on time.* Application at uniform and proper temperature assures good penetration.

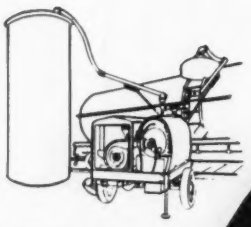
WRITE TODAY for the name of your nearest dealer and complete information.

OTHER PRODUCTS:
ASPHALT DISTRIBUTORS • TAR KETTLES • MAINTENANCE DISTRIBUTORS • BURNERS STREET FLUSHERS • SPRAY UNITS • SUPPLY TANKS • SURFACE HEATERS • SHOULDER ROLLERS... and Agricultural Equipment.

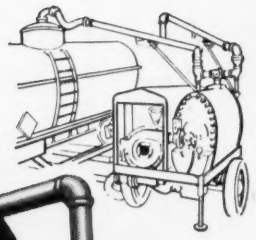
Built to the Highest
Standard

NORTH KANSAS CITY, MO., U.S.A. **Standard Steel Works**

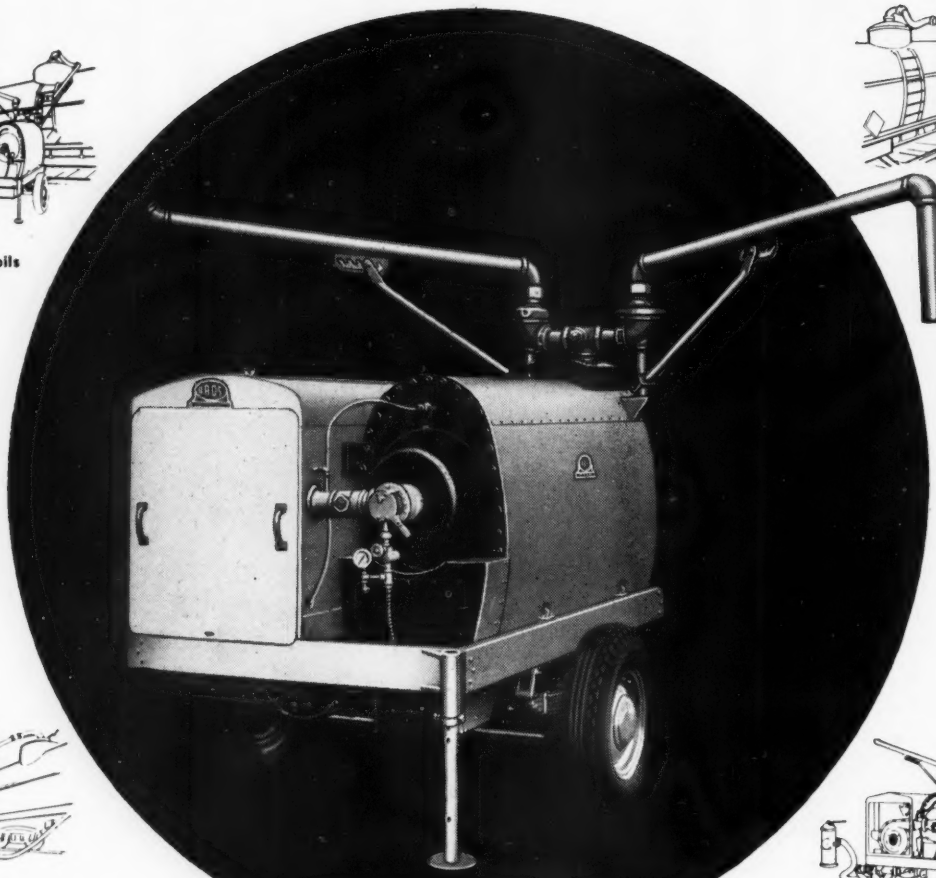
BETTER HEATING BEYOND THE RANGE OF STEAM

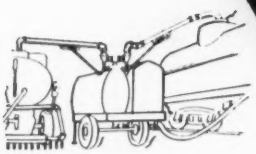


Heating and pumping heavy oils from tank car to storage tank

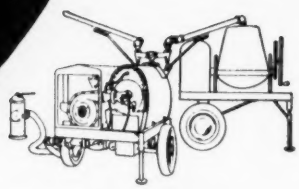


Heating and circulating oil through tank car for unloading.





Heating and pumping oils from tank car to distributor



Heating water for concrete mixtures

BROS

BITUMINOUS CIRCULATOR AND HEATER

● The *Bros* Circulator provides a better, faster method of handling road oils and bitumins, particularly in heating and transferring from tank car to distributor.

This direct retort type heating unit, with positive pump circulation, heats materials to temperatures unobtainable by steam and transfers them with maximum speed. It is a combination heater and high speed pumping unit.

The *Bros* Circulator heats without steam and is therefore in no way dependent on the condition of tank car coils. It transfers its own material, raises it to any desired temperature while passing through the heater and makes possible immediate draw-off of any desired quantity. Only 2 to 3 hours are needed to heat and unload a 10,000 gallon tank car.

The *Bros* Circulator is the most efficient and fastest heater on the market. It has greater pumping capacity . . . greater power . . . a 95 H.P. Ford V-8 power unit of proved long life. Parts universally available. *Bros* Circulators outperform the field. Write for complete details. Wm. *Bros* Boiler & Mfg. Company, Minneapolis 14, Minn.

SEE US AT THE ROAD SHOW—BOOTH 3009

FABRICATORS OF STEEL **BROS** SINCE 1882

WM. BROS BOILER AND MANUFACTURING COMPANY • MINNEAPOLIS 14, MINNESOTA

Preformed...
Preformed wire rope extends its influence far across the whole industrial world.
Because each of its components is preformed to its ultimate form, preformed wire rope is comparatively stress-free. It can work with all its strength — longer. Ask your own wire rope manufacturer or distributor for Preformed.
Write to the Preformed Wire Rope Information Bureau, 520 N. Michigan Avenue, Chicago 11, for an illustrated booklet telling the complete story of Preformed Wire Rope.

Yes, you can know *in advance* the exact capacity of a mixer or paver *IF* it wears an AGC Rating Plate. The Plate guarantees capacity and size . . . a guarantee backed by the Mixer Manufacturers Bureau. The Bureau has set up standards for your protection and before any mixer or paver can wear this assurance of accuracy, it must live up to these rigid standards.

When you're making an estimate, you'll know just what you can expect from your equipment. You'll save time, materials and money.

Don't gamble the next time you buy a mixer or paver. Be assured of exact capacity in advance by standardizing on equipment wearing the AGC Rating Plate. You'll find it pays!

MIXER MANUFACTURERS BUREAU

Affiliated with the Associated General Contractors of America, Inc.

Chain Belt Company
Milwaukee, Wis.

Construction Machinery Co.
Waterloo, Iowa

Koehring Company
Milwaukee, Wis.

Ransome Machinery Co.
Dunellen, N. J.

Kwik-Mix Company
Port Washington, Wis.

The Foote Co., Inc.
Nunda, N. Y.

The Jager Machine Co.
Columbus, Ohio

The T. L. Smith Company
Milwaukee, Wis.

The Knickerbocker Co.
Jackson, Mich.

PMCO

All Purpose

America's Largest Builder of Material Handling Buckets

SHOVEL
PULL SHOVEL
DRAGLINE
CLAMSHELL

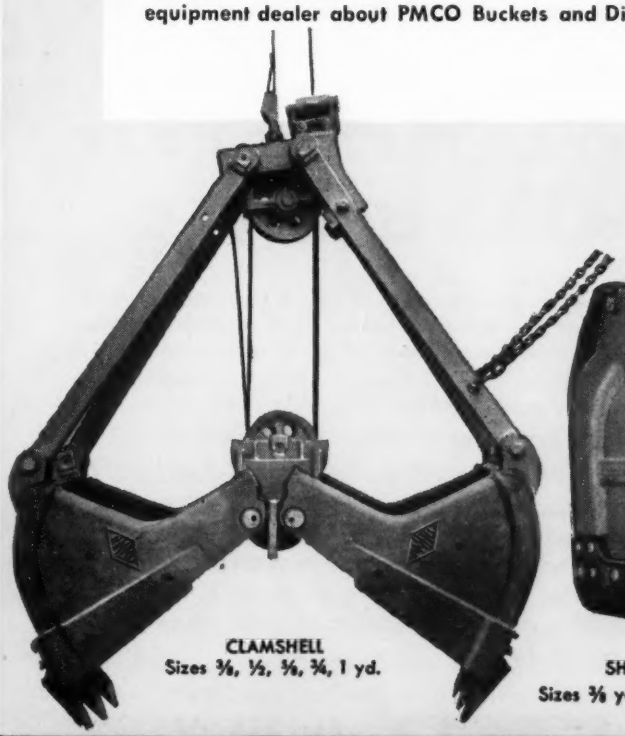
FRONTS, BOTTOMS, SCOOPS and TEETH shown in color on buckets are 14% manganese steel developing tensile strength up to 120,000 p.s.i. This high percentage manganese steel gives tough, rugged strength for hard service and allows wide set corner teeth for easy entrance in digging. Volume production methods enable us to build a better bucket with amazing economies in manufacturing.

Experience Counts. **See your shovel man or equipment dealer about PMCO Buckets and Dippers.**

DRAGLINE
Perforated Sizes ⅜ yd. to 2 yds. 20%-40% lighter than other makes.
Solid Sizes ⅜ yd. to 2 yds.
Mine Stripping Sizes 2 yds. to 9 yds

PULL SHOVEL
Outside Cutter Widths:
21", 26", 31", 36", 39"

On the ½ yd. and ¾ yd. Shovel, Pull Shovel, and Dragline Buckets, all teeth are interchangeable—a great advantage to operators.



CLAMSHELL
Sizes ⅜, ½, ⅝, ¾, 1 yd.

SHOVEL
Sizes ⅜ yd. to 18 yds.

"Quality Since 1880"

PETTIBONE MULLIKEN CORP. CHICAGO 51, U. S. A.

WE OPERATE THE LARGEST AND MOST COMPLETE MANGANESE STEEL FOUNDRY IN THE UNITED STATES

P&H Single Pass Soil Stabilizer

PROCESSING 3,000 LINEAR FEET PER DAY

Cuts the cost of road building!

Here in Mississippi, as in many other states, the P&H Single Pass Soil Stabilizer is setting up new standards for producing good, all-weather roads more quickly and at lower cost.

This 10½ mile stretch of road, 22 feet wide and processed to a depth of 6 inches, was completed in only 21 working days.

Accurate control of all elements such as uniform processing depth, thorough pulverization, accurate proportioning and blending, including liquid, etc., made it possible to meet specifications exactly and produce a road of predetermined load carrying capacity.

HERE ARE THE FACTS:

Location of project—Highway 19, Lauderdale County, Mississippi — from Alabama line to Vimville.
Length of project — 10.48 miles.
Width of roadway — 22 feet.
Depth of treatment — 6 inches, compacted.

Type of soil — Natural soil of A-2 Classification with PI 5 or less and Clay having PI of 19 combined with sand to produce material of A-2 Classification.

Stabilizing agent — Asphalt — R.C.2 (4.32 gallons per square yard equal to 7% by weight of dry soil).

Local Traffic was maintained during construction.

The P&H Single Pass Stabilizer is capable of handling any type of admixture. If you are considering the construction of base courses, secondary roads, airport runways, etc., investigate the performance of the P&H Stabilizer under conditions similar to your own. Write us for facts.

P&H

SINGLE PASS STABILIZERS

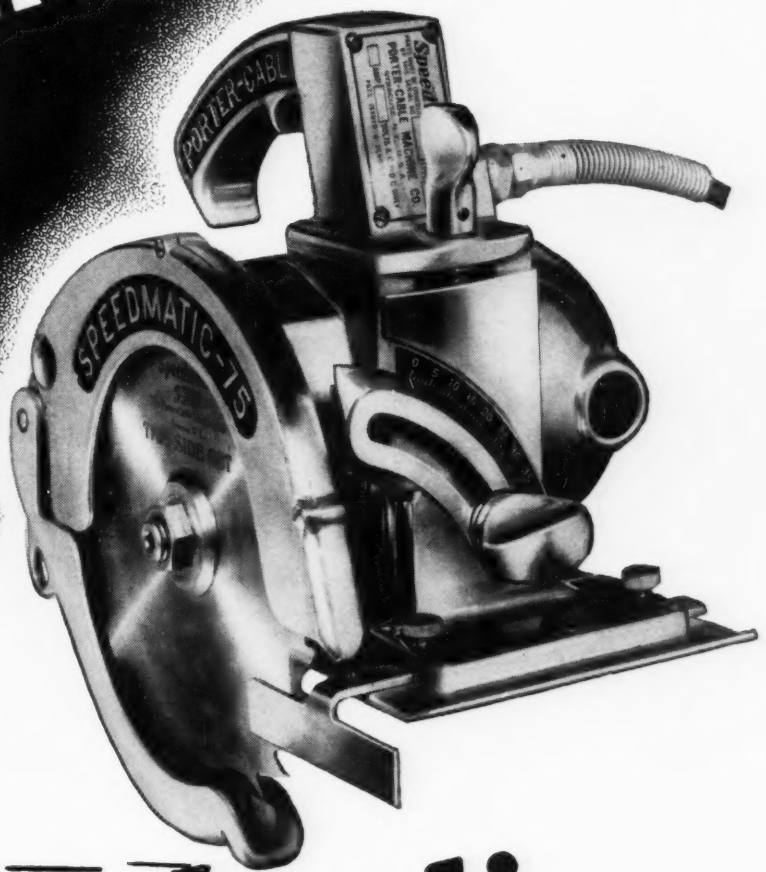
4494 West National Avenue
Milwaukee 14, Wis.

HARNISCHFEGER CORPORATION

EXCAVATORS · ELECTRIC CRANES · ARC WELDERS · HOISTS · WELDING ELECTRODES · MOTORS

EASIER HANDLING

assures
✓Straight Cuts
✓Closer Fits



Speedmatic

The EASIER One-Hand SAW!

Sure, all power saws are fast. But the SPEEDmatic has much more than just speed. It's got BALANCE . . . and that means more *exact* cuts and *closer fits*.

No Twisting . . . No Veering . . . No Tipping

Those are the results that count. The driving gears of the SPEEDmatic are designed and properly located to keep the saw free from twist or torque reactions.

The perfect balance—with the handle at the *exactly right* spot—keeps SPEEDmatic straight to the line without tipping.

The broad shoe keeps the SPEEDmatic *steady as it moves.* Hence a straight, easy cut with a minimum of guiding effort.

The high speed of the blade permits *continuous forward motion*—even on heavy pieces—without stalling or cramping.

Carpenters prefer the EASIER one-hand SPEEDmatic

As one man put it . . . "the SPEEDmatic doesn't twist my arm from its socket! I can do more work . . . better work . . . and take less time doing it."

TRY the SPEEDmatic at your local dealer or supply house. See how adaptable it is. How easily it rips, cross-cuts, mitres, bevels, dados and grooves. Try it and you'll buy it!

PORTER-CABLE
MACHINE COMPANY

1920-6 N. Salina St. **Syracuse 8, N. Y.**

SPEEDMATIC . . . for the Easier, Straight Cut!

Men who know the ropes take Tiger Brand EXCELLAY PREFORMED every time!

● Yes, the Big Demand is for TIGER BRAND . . . because U·S·S American TIGER BRAND is famous for its smooth, trouble-free performance and long, low-cost service life.

Made of uniformly high quality steel wire to close tolerances, TIGER BRAND gives you strength, toughness and flexibility . . . *in the right combination* . . . to stand up tirelessly under the most difficult working conditions. You'll find this more supple rope easier and safer to handle, too. It has less tendency to kink and snarl . . . advantages which save time, trouble, and money any way you figure them!

Your wire rope supplier can give you immediate delivery on any amount of TIGER BRAND you need. Anticipate your requirements. Keep plenty of this dependable wire rope on hand. Don't get caught with your lines down.

AMERICAN STEEL & WIRE COMPANY
Cleveland, Chicago and New York
COLUMBIA STEEL COMPANY
San Francisco
Tennessee Coal, Iron & Railroad Company, Birmingham,
Southern Distributors
United States Steel Export Company, New York
UNITED STATES STEEL

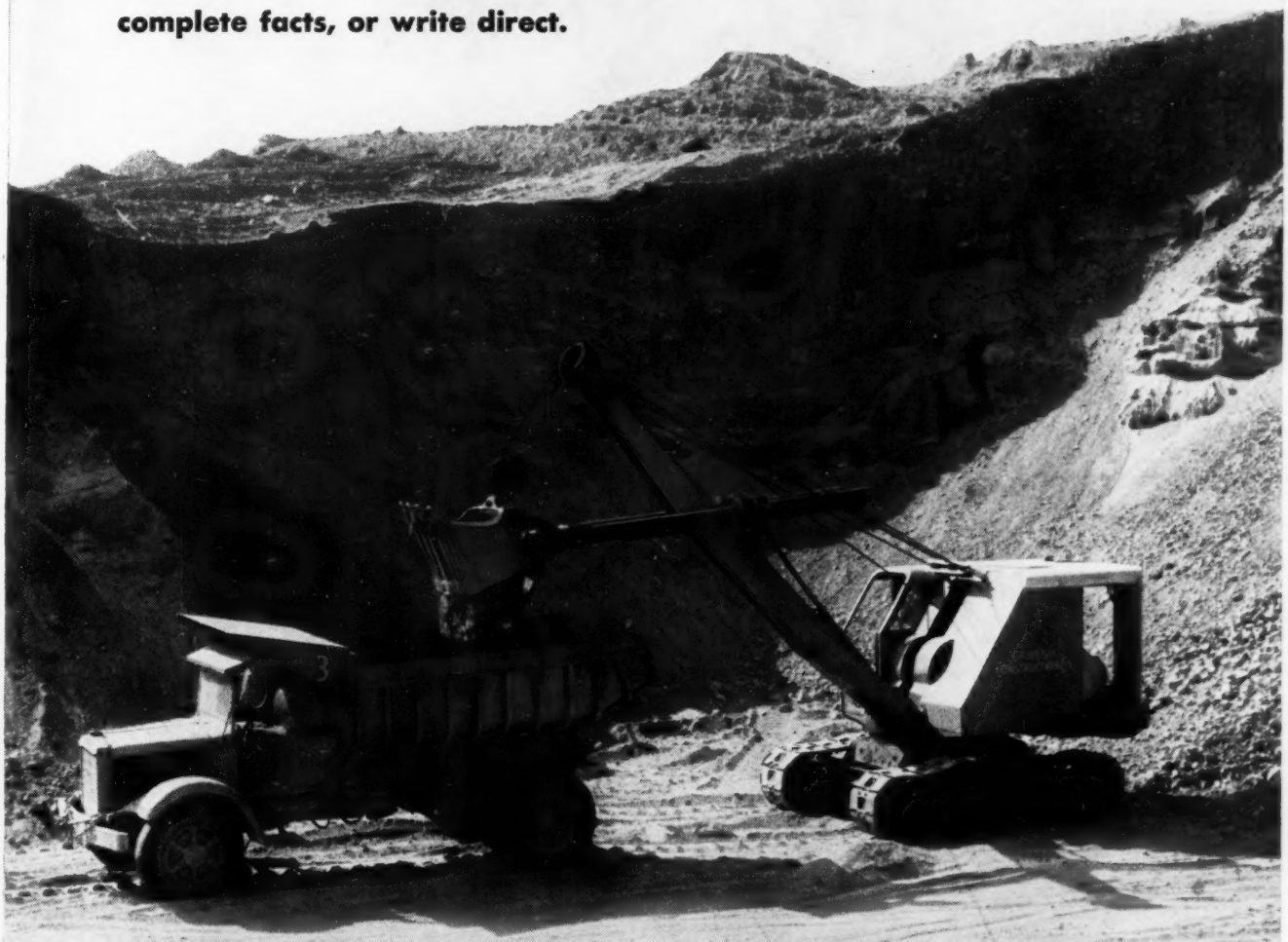
USS
AMERICAN
TIGER BRAND
WIRE ROPE
UNITED STATES STEEL
EXCELLAY PREFORMED

THE BIG DEMAND IS FOR TIGER BRAND

Want to speed your excavating and material handling at lower cost?

Do as Grasso Construction Co. does—*depend on BAY CITY*. This leading contractor in Bridgeport, Conn., operates a fleet of BAY CITY equipment, including this *heavy duty ¾ yard shovel* loading sand and gravel.

There's a BAY CITY for every purpose. See your nearby dealer for complete facts, or write direct.



BAY CITY

SHOVELS • CRANES • HOES • DRAGLINES • CLAMSHELLS

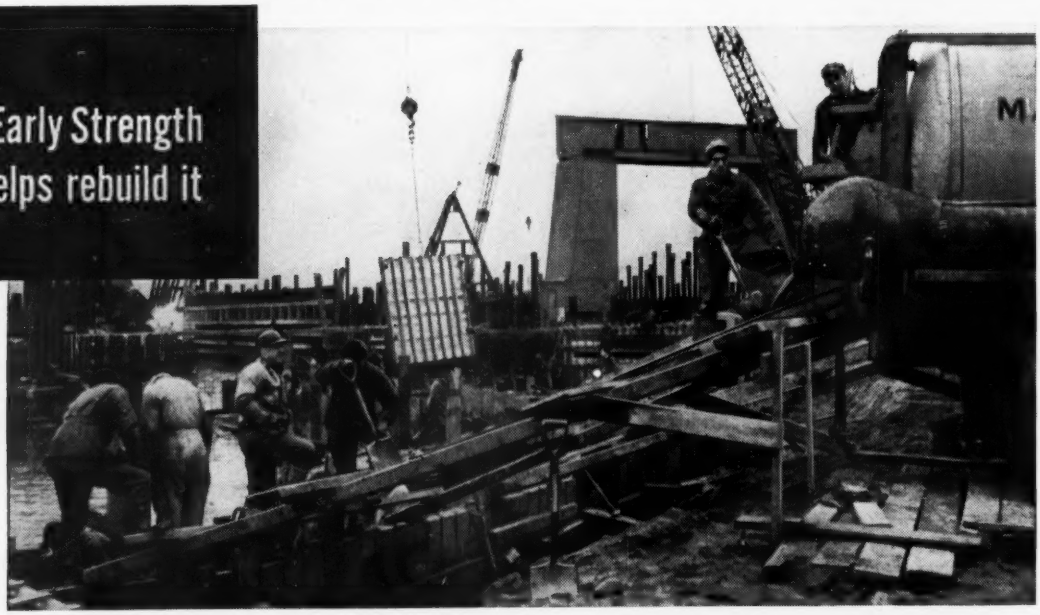
BAY CITY SHOVELS, INC., Bay City, Michigan

SEE YOUR NEAREST DEALER for Bay City excavating and material handling equipment in sizes from ⅜ to 1¼ yards having crane rating up to 20 tons. Both crawler and pneumatic tire mounting.

FIRE destroyed the Staten Island Ferry Terminal

• Fire razes the terminal building, halts ferry service.

LEHIGH Early Strength Cement helps rebuild it



• Pouring concrete made with Lehigh Early Strength Cement on Ferry Slips Nos. 7 and 8.
Owner: City of New York, Dept. of Marine & Aviation, Pier "A", North River, N. Y.; Consulting Engineers: Madigan-Hyland, 2804 - 41st Ave., L. I. C., N. Y.; Contractor: J. Rich Steers Company, 17 Battery Place, N. Y. C.; Ready Mixed Concrete: Road Material Corp., Arthur Road, Eltingville, P. O. Greenwich, S. I., N. Y.

Up in smoke went the St. George Ferry Terminal . . . vital link between Staten Island and the Boroughs of Manhattan and Brooklyn. 100,000 commuters delayed . . . 32,000 arriving and departing on 505 daily railroad trains, 60,000 more in 1635 buses; not to mention other thousands riding in 3200 passenger cars and trucks!

Almost before the embers cooled, partial ferry service was restored with a temporary terminal. New York City, with typical foresight, already had plans for a new terminal even before the fire . . . thus could start permanent reconstruction without delay.

Modern construction methods and materials, including Lehigh Early Strength Cement, are helping to rebuild the Terminal with minimum hardship to the public . . . and in the shortest possible time. Just another reason why we say, "—on nearly every job, Lehigh Early Strength Cement offers greater convenience, more speed, or lower costs."

LEHIGH PORTLAND CEMENT COMPANY
ALLENTOWN, PA. • CHICAGO, ILL. • SPOKANE, WASH.

Lehigh CEMENTS

LEHIGH PORTLAND CEMENT • LEHIGH EARLY STRENGTH CEMENT • LEHIGH AIR-ENTRAINING CEMENT • LEHIGH MORTAR CEMENT

"Johnny-on-the-SPOT" when you've got to pour it HOT!

Mobile tank-car heater available in two and three tank car heating capacities. Oil-fired with extra high heat transfer flue-travel; dry coil steam condensate return under pressure — no water or heat losses.

Cleaver-Brooks Mobile Tank Car Heaters Give You:

- Fast Steaming — 20 minutes from cold water start to 125 lbs. steam pressure.
- High heat transfer — low fuel consumption — minimum water losses.
- Year-round application. Besides tank-car heating, it can be effectively used for steam cleaning, catch basin thawing, culvert thawing, etc.
- Trailer or truck mounting for quick job-to-job transport.

Get the Steam you Need for Fast Tank-Car Heating... USE LESS FUEL, LESS WATER AND LESS WORK

THE tank car on the siding is the starting point for fast work on any project requiring the heating and handling of bituminous materials. The quicker the material is heated to application temperature and flowing into the distributors — the faster your road crews can get going.

But that's not all — the Cleaver-Brooks tank car heater is an all-purpose unit when it comes to providing a source for steam and heat for thawing, cleaning and other heating requirements.

It's so readily portable, that it can go anywhere you can take a car or truck. This feature alone makes it one of the handiest tools for a wide range of construction operations. For more information write for bulletin.

CLEAVER-BROOKS COMPANY
387 E. KEEFE AVENUE • MILWAUKEE 9, WISCONSIN

Cleaver-Brooks

PIONEERS AND ORIGINATORS OF

TANK CAR HEATERS... BITUMINOUS BOOSTERS... AUTOMATIC STEAM PLANTS

"and it shall be the duty..."

. . . of the members of the Truck Mixer Manufacturers Bureau, in the interests of our customers, to accurately conform to the standards established by the Bureau guaranteeing the size and capacity of truck mixers.

This is the guiding principle on which the Truck Mixer Manufacturers Bureau is founded. It is based on your best interests and ours! To you, it means that you can judge a truck mixer on its mechanical merits . . . you need have no worries about size and capacity . . . you can accurately establish those portions of your operating costs which are based on the capacity of the machine.

To us, it represents an essential protection against the loss of customer good will that might be caused by the confusion of a multiplicity of sizes . . . by constant changes in capacity with resultant early obsolescence of existing machines.

The rating plate of the Truck Mixer Manufacturers Bureau is your assurance of our constant conformance to these standards . . . your guarantee of capacity.

2 CUBIC YARD MIXER
GUARANTEED TO HOLD, MIX AND AGITATE ITS RATED CAPACITIES AND CERTIFIED TO COMPLY WITH TRUCK MIXER MANUFACTURERS BUREAU STANDARDS AS APPROVED BY N.R.M.C.A.
3 CUBIC YARD AGITATOR
N.R.M.C.A. REGISTRY No.

Truck Mixer Manufacturers Bureau

Affiliated with The National Ready Mixed Concrete Association

BLAW-KNOX DIVISION Pittsburgh, Pa.	CONCRETE TRANSPORT MIXER CO. St. Louis, Mo.	RANSOME MACHINERY COMPANY Dunellen, N. J.
CHAIN BELT COMPANY Milwaukee, Wis.	THE JAEGER MACHINE COMPANY Columbus, Ohio	THE T. L. SMITH COMPANY Milwaukee, Wis.

The LINK-BELT SPEEDER "ROAD SHOW" *is a* CONTINUOUS PERFORMANCE!

There is no better show on earth than a highway job completed with pride and profit.

Playing a feature role in jobs from coast to coast is a star trouper giving a star performance—top production without fuss or feathers—the name—LINK-BELT SPEEDER SHOVEL-CRANES.

LINK-BELT SPEEDERS are seasoned with an enviable record of trouble free operation. Crawler or wheel-mounted —3/8 yard to 3 yard capacity—there's a LINK-BELT SPEEDER to fill the needs of roadbuilding everywhere.

PLAYS MANY PARTS—LINK-BELT SPEEDER SHOVEL-CRANES are readily convertible to all standard front end attachments—a LINK-BELT SPEEDER SHOVEL-CRANE is busy equipment for roadbuilders—playing many profitable parts—they will do a grand job for you too.

You can quickly learn a great deal about LINK-BELT SPEEDERS from your distributor. His organization has our complete co-operation and is equipped to serve you.

11,120

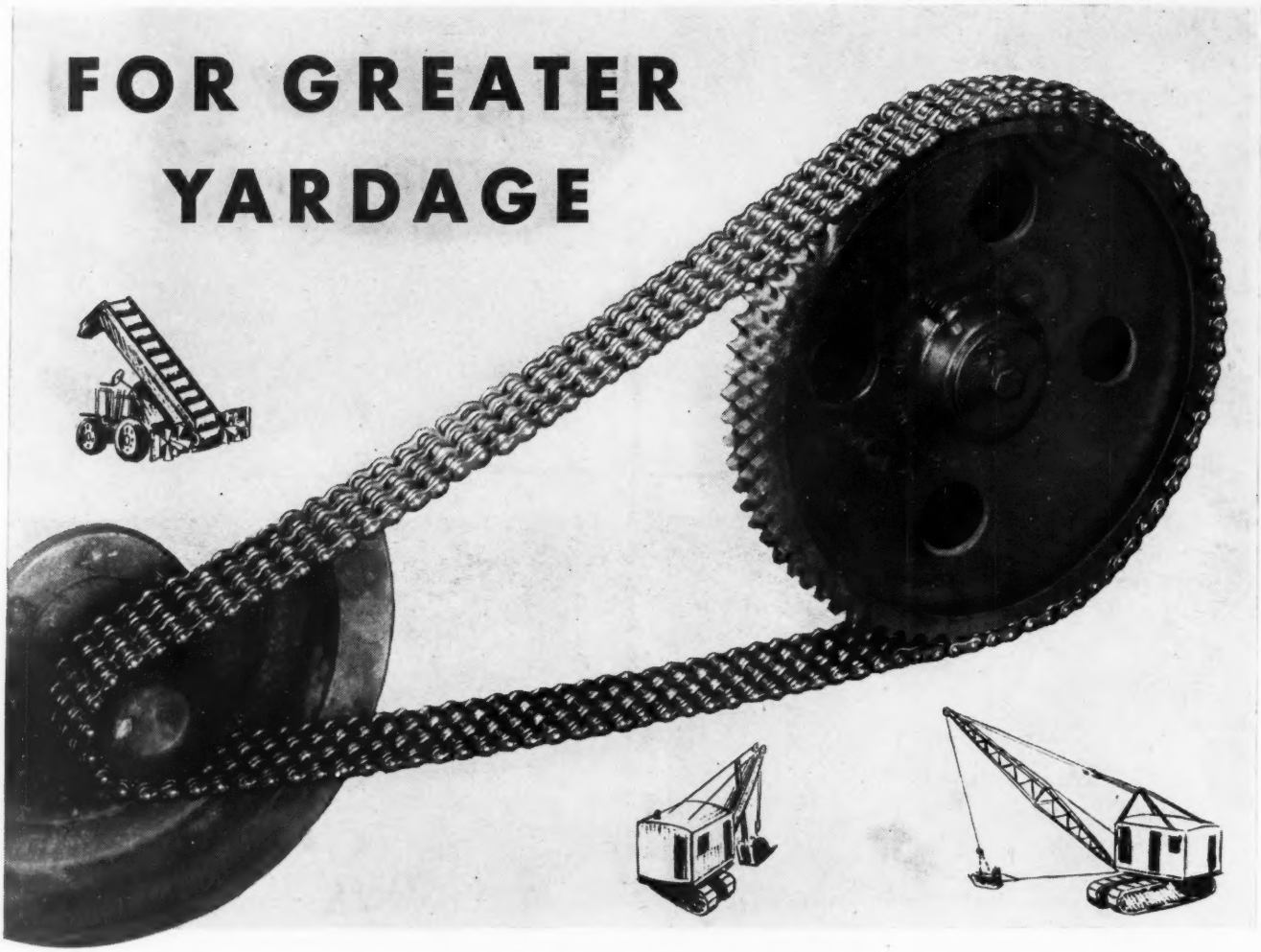
LINK-BELT SPEEDER

LINK-BELT SPEEDER CORPORATION,
CEDAR RAPIDS, IOWA

LINK-BELT SPEEDER CORPORATION

Builders of the Most Complete Line of
SHOVELS-CRANES-DRAGLINES

FOR GREATER YARDAGE



Diamond Drive Equipped Excavators Stay On The Job

Through years of experience contractors and operators of construction machinery have had ample proof of the long-life ruggedness of Diamond Roller Chain Drives. The ability to stay on the job and deliver the power so dependably means extra yardage.

For original equipment and in-the-field applications — it's good business to look for Diamond Chains, always.

DIAMOND ROLLER CHAINS

DIAMOND CHAIN COMPANY, Inc.

Dept. 418, 402 Kentucky Avenue, Indianapolis 7, Indiana

Offices and Distributors in All Principal Cities

PRIME MOVER* PRIMER

for contractors wanting facts

● Right from A to Z, you'll find the new BELL Prime Mover has a place in your plans. It does the work of a four-man wheelbarrow gang. It does this work better, quicker, at a fraction of the cost...can earn you as much as $30 extra per day.

Broad, heavy tires roll over rough ground. The 3-hp engine pulls half-ton loads through soft mud and up 20% grades. Convenient controls, instantly responsive, provide extreme safety and maneuverability.

We'll be happy to answer any questions you may have on the Prime Mover for construction jobs. Meanwhile, we have some operating data applying to construction jobs. The coupon will bring this information by return mail.

● The 10-cubic-foot bucket holds up to 1000 pounds of concrete mix, sand, gravel, and similar heavy materials; with sideboards, up to 18 cubic feet of lighter, bulkier materials.

● It takes only a few seconds to switch from bucket to platform...for moving heavy jacks, tools, sacks of cement, brick, tile, bundled wire, and loads of similar construction materials.

● For simple grading jobs, such as lawns or tennis courts, there's a 50-inch "baby bulldozer" blade. It's adjustable to three positions. You can't beat it for working in close quarters.

The BELL Prime Mover*

FEATURES:

- takes half-ton loads up 20% grades.
- bucket holds 10 cu. ft...18 with sideboards.
- gear driven... no chains or belts.
- clutch, engine, transmission all run in oil.
- fully enclosed engine protected against dirt and moisture.
- half-ton platform body available; also 50-inch "baby bulldozer" blade.
- switch from bucket to platform without tools...in less than a minute.
- turns in its own length (63½"); width only 31½".
- 3-gallon tankful of fuel gives 8 hours continuous service.

A PRODUCT OF BELL *Aircraft* CORPORATION

★ PATENTS & T. M. REG. PENDING. COPYRIGHT, 1948

SEE OUR EXHIBIT
at the ARBA Road Show...
Soldiers' Field, Chicago
July 16 to 24

Bell Aircraft Corporation,
P. O. Box 1C-6, Buffalo 5, N. Y.

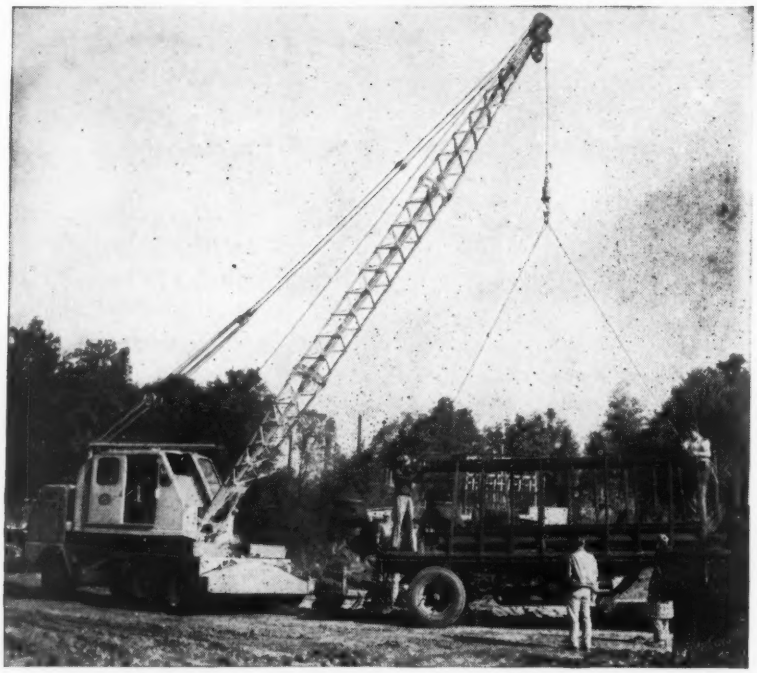
Please send me engineering and cost data on the Prime Mover, including users' experience on building and construction projects.

Name .....

Address .....

Company .....

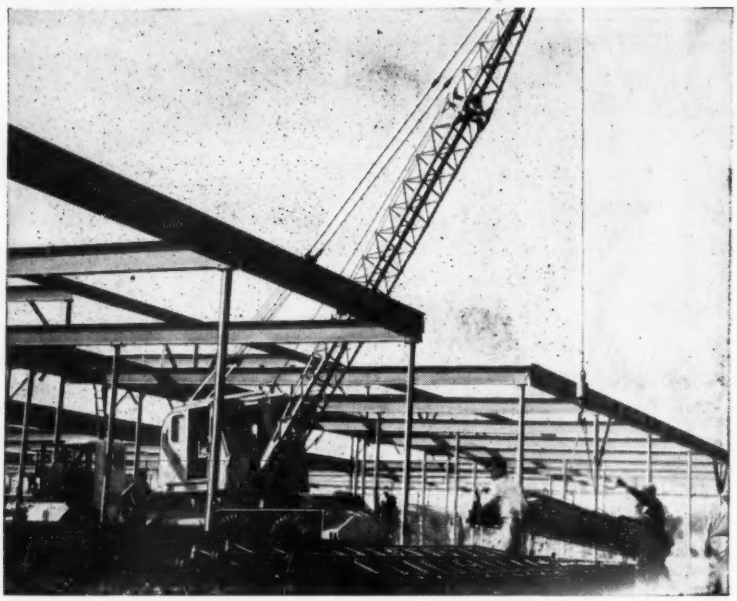
City, Zone & State.....



Four Jobs...

ONE MORNING

1. **Erect roof trusses**
2. **Unload cast-iron pipe**
3. **Set structural steel**
4. **Place prefab sheathing for roofing crew**



F. H. McGRAW COMPANY'S MICHIGAN TRUCK CRANE

Keeps Crews Busy, Prevents Delays...

This single morning's work is typical of Michigan. Although smallest of the cranes owned by F. H. McGraw Company, Inc., this Michigan 12-ton Truck Crane has worked on a wide variety of industrial construction jobs from Connecticut to Illinois. To the complete satisfaction of its owner, it has proved an outstanding time-saver . . . For *your* jobs, too, get the mobility, speed and dependable, economical performance of Michigan Mobile Shovel-Cranes. Send for full details.

MICHIGAN

MICHIGAN POWER SHOVEL COMPANY

495 MILLER STREET • BENTON HARBOR, MICHIGAN, U. S. A.

Just the Job
FOR A HEAVY DUTY GMC

and *here's what we mean by* Heavy Duty

Over-the-road or off-the-highway hauls of big loads of stone, sand, gravel and other construction materials are jobs for heavy, rugged trucks. They are jobs that GMC heavy duty trucks perform with outstanding efficiency, economy and trouble-free service.

For GMC heavy duties are built to stand the gaff of day-after-day heavy hauling work . . . with heavyweight big-truck axles, frames, transmissions, clutches, brakes, and gasoline and Diesel engines especially designed for hauling gross weights up to 90,000 pounds.

You'll save money on your heavy hauling by putting your money into a heavy duty GMC. Many models are now available for quick delivery. See your GMC dealer.

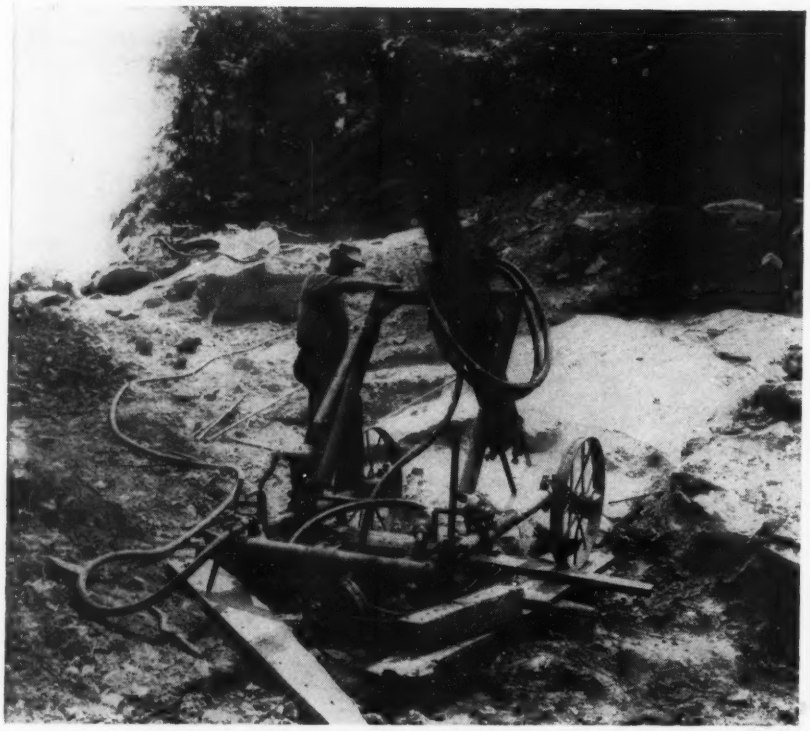
GMC TRUCK & COACH DIVISION • GENERAL MOTORS CORPORATION

THE TRUCK OF VALUE

GMC TRUCKS

GASOLINE • DIESEL

DRILL STEEL



On this road relocation job, the modern wagon drill is putting down deep holes in fast time, while other drilling work is handled with lightweight, hand-held machines.

that speeds roadbuilding

Contractors can just about forget drill-steel problems when they have Bethlehem Hollow on the job. Whatever the road job may call for in the way of rock-drilling, they know they can depend on this old favorite for extra footage and lasting service. It has a tough, fatigue-resisting core . . . and it heat-treats readily for the ideal hardness and wear-resistance.

Blacksmiths can depend on Bethlehem Hollow to be uniform from bar to bar. It forges readily to close dimensions . . . for long-wearing shanks, forged-on bits, and threads for detachable bits . . . it has a center hole which is smooth and true. It's an all-round performer for every rock-drilling job.

Next time you have a highway or bridge contract make sure you've got Bethlehem Hollow to drill the rock. It's available from your nearest converter or steel supplier.

BETHLEHEM STEEL COMPANY
BETHLEHEM, PA.

On the Pacific Coast Bethlehem products are sold by Bethlehem Pacific Coast Steel Corporation
Export Distributor: Bethlehem Steel Export Corporation

★ BETHLEHEM STEEL ★

BETHLEHEM HOLLOW DRILL STEEL

Profit-making capacity
Ready portability

Illustrating the TwinDual Pacemaker Junior.
Gasoline, diesel or electric power

UNIVERSAL TWINDUAL PACEMAKER*
293-Q PORTABLE STONE PLANT

BETTER ROADS FOR A BETTER WORLD · 45th Annual Convention and Road Show · SOLDIER FIELD CHICAGO · JULY 16-24, 1948

BOOTH NO. 2616

FOR **MORE** TONS PER HOUR
AT **LESS** COST PER TON
IT'S **UNIVERSAL**

TOP OUTPUT WITH 3 STAGES OF REDUCTION

FIRST STAGE - JAW CRUSHER
SECOND AND THIRD STAGES - TWINDUAL ROLLS

Here's the portable stone plant with the capacity of a large stationary installation plus the extra advantages of Universal "Stream-Flo" engineering. Featuring three full stages of reduction with only two crushers, the **TwinDual Pacemaker** produces money-making volume of finished aggregate for road surfacing, concrete work, etc. Used with great success in gravel pits containing big boulders requiring a large opening crusher. It shovel-loads direct from quarry, saving the expense of ramps and trucks. Quickly and easily moved and in operation in 30 minutes. Owners report consistent production of 125 tons per hour of ¾" minus stone with their **TwinDual Pacemaker** Seniors under a wide variety of conditions.

For capacity to tackle largest contracts . . . for portability to move quickly to any job . . . for **more profit** investigate the **Universal TwinDual Pacemaker.**

Write for Bulletin No. 31AA

*Patented

UNIVERSAL ENGINEERING CORPORATION

329 8th STREET, N. W. • • • CEDAR RAPIDS, IOWA

ENGINEERS AND BUILDERS OF "STREAM-FLO" ROCK, GRAVEL, AND LIME PLANTS, SCREENING AND WASHING PLANTS—CONVEYORS—APRON FEEDERS

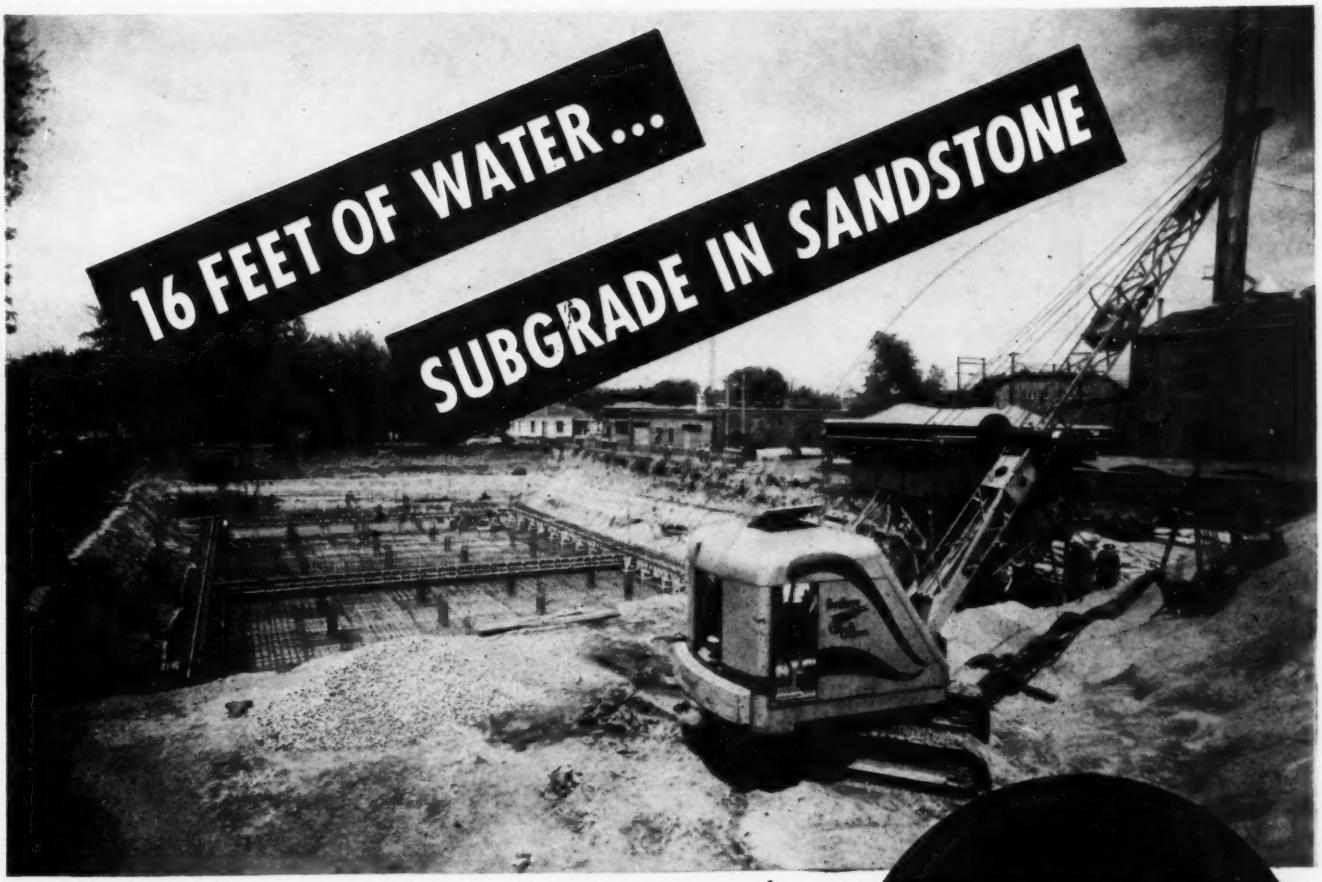
The smoothly coordinated action of Bucyrus-Erie shovels makes digging a rhythmic dig-swing-dump routine that quickly piles up big output. Behind this precision blending of operating functions is responsive, full-feel control that practically "puts the load in the operator's hand."

Whether he is swinging, crowding, hoisting, or propelling . . . whether he is just starting the shift or finishing up . . . the operator gets exactly the power response he wants. The big cool-running clutches are self-adjusting for temperature variations, respond to lever action with a softness that eliminates jerks. The large brakes have high holding power, yet pedal pressures are low. Operating levers are long enough for plenty of feel, short enough for easy operation; a given pressure always effects the same response. Levers are conveniently arranged, too, so that the operator finds them all within easy reach.

These are a few of the reasons why operators of Bucyrus-Erie ⅜- to 2½-cu. yd. excavators can maintain a high-speed clip all through the shift, regardless of front-end type. See your Bucyrus-Erie distributor for more details about the control that gives these machines a head start in any kind of digging. And don't fail to ask about their easy convertibility for operation as shovel, dragline, crane or clamshell.

102E47

BUCYRUS-ERIE COMPANY
SOUTH MILWAUKEE, WISCONSIN



Pumping handled perfectly by a MORETRENCH WELLPOINT SYSTEM

Sixteen feet of water in a mixture of clay, fine sand, and gravel—*with subgrade in sandstone!* That was the unusual dewatering problem presented on the underground reservoir project pictured here.

To pull the water down below grade, Moretrench Wellpoints had to be installed a foot or two in the sandstone. This difficult installation—key to the success of the job—was carefully made by an ace Moretrench supervisor.

Pumping continuously for eight months, Moretrench Wellpoint Equipment enabled the contractor to carry on construction in the dry. Banks were sloped. No bracing or sheeting was necessary.

Call in Moretrench on *your* difficult dewatering jobs.

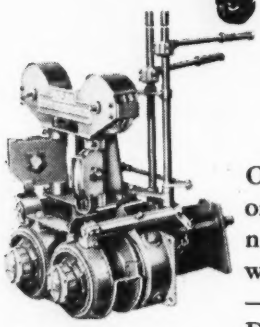
Concrete Underground Reservoir, Fairbury, Nebraska. Contractor: Chambers Construction Co., Lincoln, Nebraska. Engineers: Harold Hoskins and Associates, Lincoln, Nebraska.

MORETRENCH CORPORATION

90 West St. New York 6 | 3037 S. Christiana Ave. Chicago 23, Illinois | 7701 Interbay Blvd. Tampa 6, Florida | 315 W. 25th St. Houston 8, Texas | Rockaway New Jersey

Tough and Ready

. . . Heil Cabledozers smooth out the rocky road to profits—thanks to their durability and easy handling



Heil Cable Power Control units provide quick moldboard action with little or no effort on the part of the operator.

One way to make more money on a job is to keep maintenance costs down. That's where Heil Cabledozers shine — they're built to take it. Down-time is greatly reduced. Here are a few features that keep Heil dozers ready to work for you:

All-welded box-section construction provides a lightweight frame of unusual strength.

Balance—proper distribution of loads and stresses keeps your tractor on the job longer.

Dependable power control unit—drums run cool. Properly designed sheaves and the elimination of shocks and jerks reduce cable wear.

Reversible cutting edges—these special wear-resistant steel blades stay busy longer.

Operators get more done too, when using Heil Cabledozers. Here's why:

Good visibility—60% of the moldboard is visible at all times.

Quick-acting power control unit—responds to finger-tip pressure.

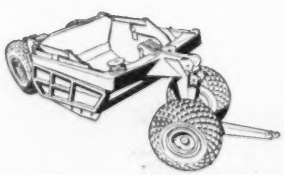
Scientific contour of moldboard—special curve provides better digging and rolling action—bigger loads.

Dependability—Heil Cabledozers are always ready to go. Operators spend their time moving dirt.

Become a Heil Cabledozer user and watch your profits grow. Let your International Industrial Power Distributor show you why. Write us for latest bulletins and specifications.

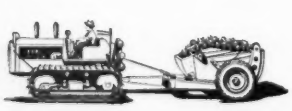
THE HEIL CO.

General Offices • Milwaukee 1, Wisconsin



R-94 OC Type (open-top) Scraper

Heiliner-Scraper



3½ yd. Rear Dump Scraper

Hydraulic Trailbuilder

Greater Strength and Serviceability Obtained at Lower Cost with Arc Welding

By David R. Graham
Structural Engineer
Tulsa, Oklahoma

MANY new advancements in structural design are now made possible costwise through arc welded construction. Longer column-free spans, increased structural strength, greater building serviceability, are achieved *at lower building costs*. The multi-purpose building constructed for the Wright Recreation Company, Tulsa, Oklahoma, is designed for arc welded construction and serves to illustrate these structural advantages. This building, at present used as a skating rink, is so designed that it can be converted easily to a large warehouse or factory building.

With a length of 180 feet and span of 80 feet, this building has a maximum clearance height of 29 feet from floor to roof members. The rigid frame construction used produces an entirely unobstructed interior highly desirable for sports arenas or for unpredictable future conversion requirements. All roof trusses and interior columns are eliminated. High side walls, normally needed in conventional construction to obtain greater floor to roof clearance, are avoided by this all-welded rigid frame design, thus reducing structural costs.

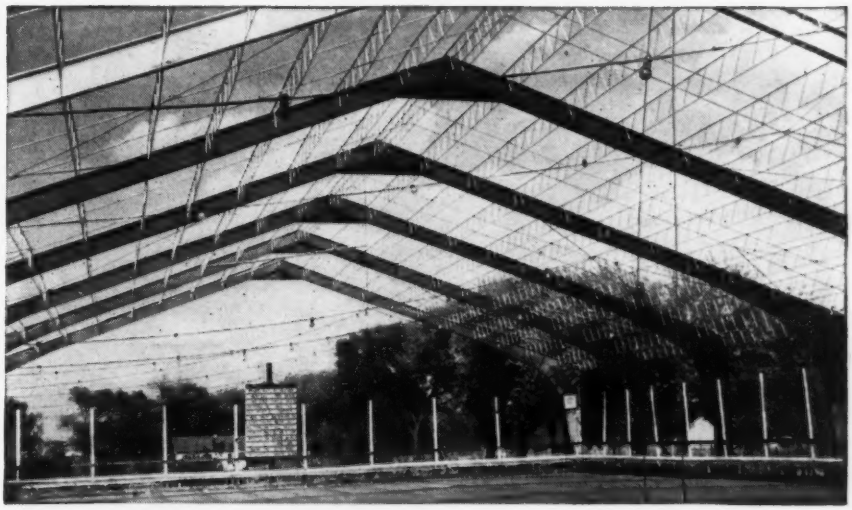


Fig. 2. Building framework for the Wright Recreation Company, Tulsa.

The arch frames (Fig. 1) are designed by the usual rigid frame formulas allowing the entire structure to support an evenly distributed snow load of 25 pounds per square foot. The design analysis also allows for wind velocities up to 70 miles per hour.

The arch frames are built from flame-cut steel plates to which inside and outside plates and ribs are fillet-welded with "Fleetweld 5" electrode. All arch frames are shop-fabricated and hauled to the site for field-weld erection. Gable members are fabricated from 16" WF beams. Haunches and legs are welded from flame-cut steel plate.

The bar joist purlins are $\frac{5}{8}$" steel bars, arc welded to the roof members as shown in Fig. 2. Although steel bars are a little more costly per pound than channels, they are considerably lighter, thereby reducing dead weight in the building frame.

A building of similar design, but 80 feet by 100 feet in size, is being built for a gymnasium at Kiefer, Oklahoma.

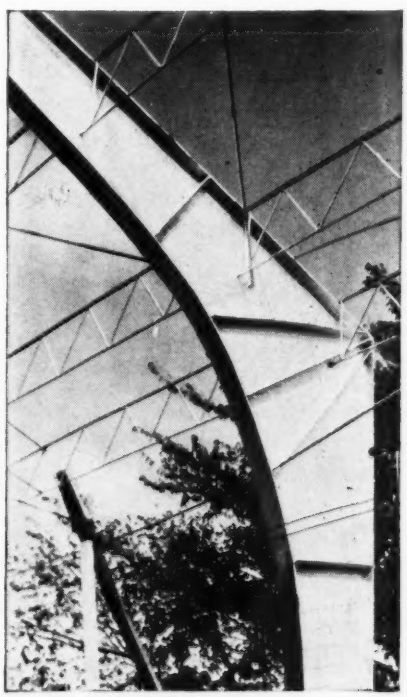


Fig. 1. Arc welded arch frame showing connections of bar steel purlins.

Fig. 3. Inside view of building showing completed brickwork and roofing. Fabrication and erection by the Saxon Steel Co., Tulsa, Oklahoma.

The above is published by LINCOLN ELECTRIC in the interests of progress. A full discussion on Rigid Frame Design, with formulas, is given in the Procedure Handbook ($1.50 in U. S. A., C. O. D.). Write The Lincoln Electric Company, Dept. 124, Cleveland 1, Ohio. Advertisement

SURE-GRIP
EARTH MOVER
for maximum traction on drive wheels
A Right Tire For Each Job
EARTH MOVER ALL-WEATHER
for drawn vehicles and general traction
HARD ROCK LUG
for super-stamina in all rock work
Sure-Grip means more pull!

ONE good look tells you why this tire — Goodyear's great Sure-Grip — delivers more traction than other work tires. See how that o-p-e-n c-e-n-t-e-r self-cleaning tread makes each lug bar a *separate* traction cleat? That's what makes these husky lug bars bite in, take a firm grip with minimum slip, and pull sure and steady in toughest going.

No wonder the Sure-Grip is *first choice* on the drive wheels of units where pulling power is the top need!

Fact is, every job-proved Goodyear work tire is first choice for its special type of service. And it *stays* first choice because it keeps on delivering long-life, low-cost performance. Result: year after year, *more yards are moved on Goodyear off-the-road tires than on any other kind!*

BUY and SPECIFY GOODYEAR — *it pays!*

Sure-Grip, All-Weather—T.M.'s The Goodyear Tire & Rubber Company

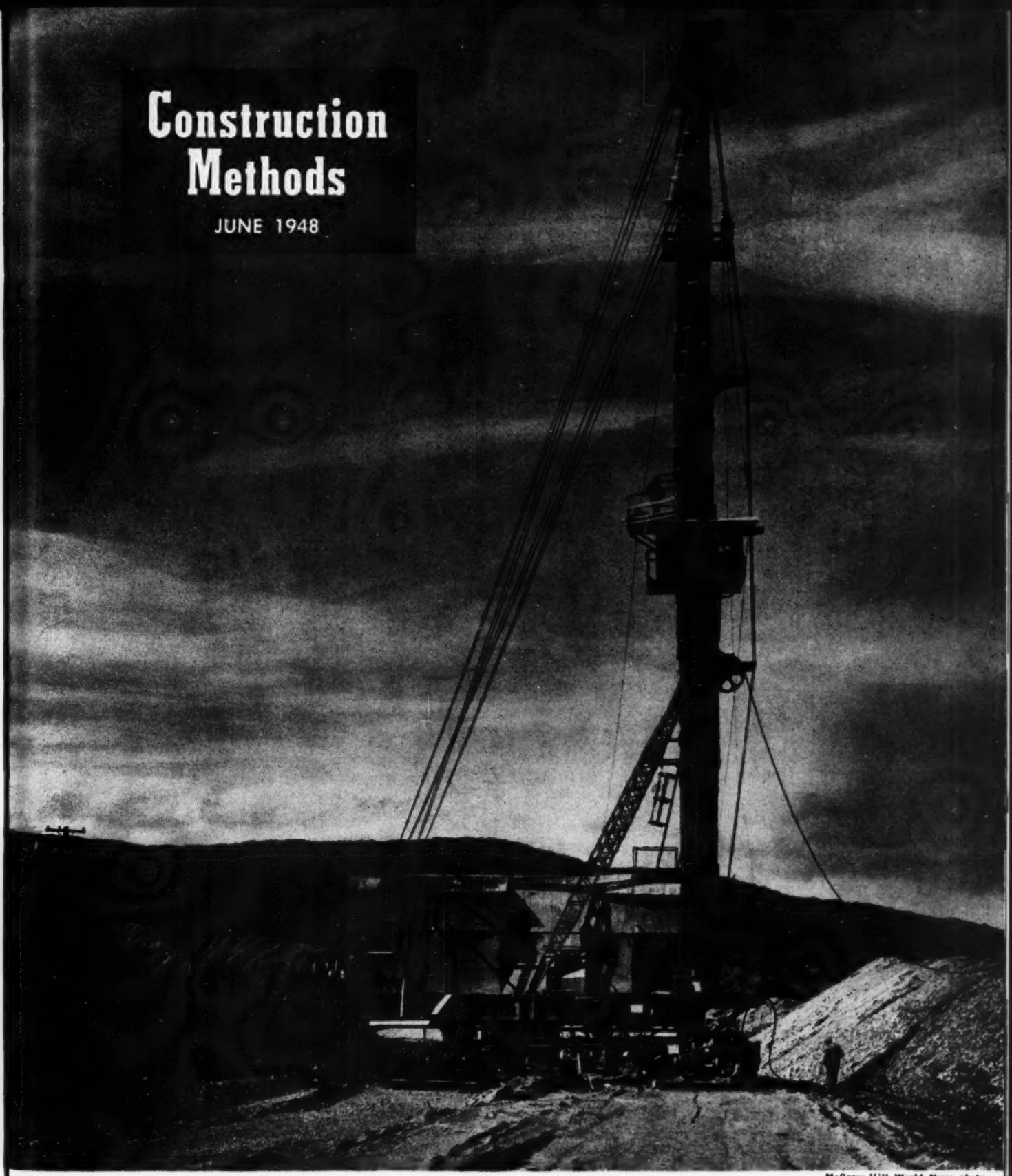
GOODYEAR

MORE YARDS ARE MOVED ON GOODYEAR OFF-THE-ROAD TIRES THAN ON ANY OTHER KIND

BETTER ROADS FOR A BETTER WORLD · 45th Annual Convention and Road Show · SOLDIER FIELD CHICAGO · JULY 16-24, 1948

Construction Methods

JUNE 1948



McGraw-Hill World News photo

Tower Excavator on New Zealand Flood Control

PROVED HIGHLY SUCCESSFUL on Mississippi River levees and the Beauharnois Canal, tower excavators have now been imported into New Zealand for flood control work. Three Bucyrus-Erie tower units have been purchased by the New Zealand Department of Works. One, whose 130-ft. head tower is shown here, is already at work dredging the Otaki River north of Wellington. It is electric-operated through three 187-hp. motors receiving power from a separate 1,100-kw. diesel generating plant, and runs on rails. The corresponding tail tower, 30 ft. high, is mounted on four crawlers. This unit is now operating a 10-yd. slackline cableway bucket on an 840-ft. span.

The flood control projects are under the direction of Hon. R. Semple, Minister of Works and W. L. Newnham, chairman, Soil Conservation and Rivers Control Council.

SINGLE LINE OF TOWERS supports combination bracing and street decking, leaving large clear areas for construction of rapid-transit subway extension in Queens, New York City. Soldier-beam piles and sheeting hold sides of deep cut.

CLEAN-CUT BRACING

Tames Tough New York Subway

HIGHLIGHTING cut-and-cover construction of a 2,450-ft. extension to New York City's subway system is the clean bracing—strong yet simple—that holds the sides of the deep excavation and also supports decking for a busy street above, on which vehicular traffic is continuously traveling. Van Wagner Construction Corp., New York, contractor for the $5,525,000 job for the Board of Transportation, have laid out their temporary framing to clear all permanent subway structures and give maximum unobstructed working space broken only every 45 ft. by a single tower or a transverse line of three posts.

The new subway section will extend the IND Division's 4-track Queens Boulevard line eastward beneath Hillside Ave. to 184th Place, Jamaica. A new station at Midland Parkway near the connection with the existing subway section is included, and here the four tracks are on one level. Beyond the station is a transition section, where two tracks are further depressed and two go up grade, leading to a two-level area with four 1,100-ft. storage tracks on each level. Depth of cut for the concrete and steel subway structure varies from 35 ft. in the station area to 50 ft. in the two-level section. The width similarly narrows from 90 ft. to 60.

The general framing scheme is to drive soldier-beam piles along the net excavation line, and brace across the cut directly beneath street level so the struts also serve as floor beams for the roadway decking. The transverse beams frame into a cap along the soldiers, and into intermediate longitudinal girders. In the wide section of the cut there are three girders, 25 ft. apart, but in the narrow area there are only two, each 3 ft. off the centerline. All girders span 45 ft. between posts or tower supports. About 500 ft. of the deepest section is additionally braced just above subway roof level by a layer of transverse struts on 22½-ft. centers.

Soldier piles are 14- and 18-in. WF beams driven on 6- to 8-ft. centers to penetrate a minimum 5 ft. below subgrade. Most of the subsurface material at the site is clean, coarse sand, but a 6- to 20-ft. top layer of glacially deposited boulders complicates the driving so it is clammed out before piles are put down. With the soldiers driven and cut off to grade, a little more than half the roadway of Hillside Ave. is closed to traffic and excavated 5 ft.

Bracing is then assembled in place on blocking in this area. The soldier cap is a 24-in., 100-lb. WF continuous beam with web horizontal, girders are 36-in., 230-lb. WFs, also welded continuous, and transverse beams are 24-in., 76- and 84-lb. WF sections on 10-ft. centers. All connections are welded, and soldiers, cap and crossbeams are bolted together as well. The bracing is decked solid with 5-in. planks spiked to 6x12-in. timber stringers, on edge, on 2-ft. centers.

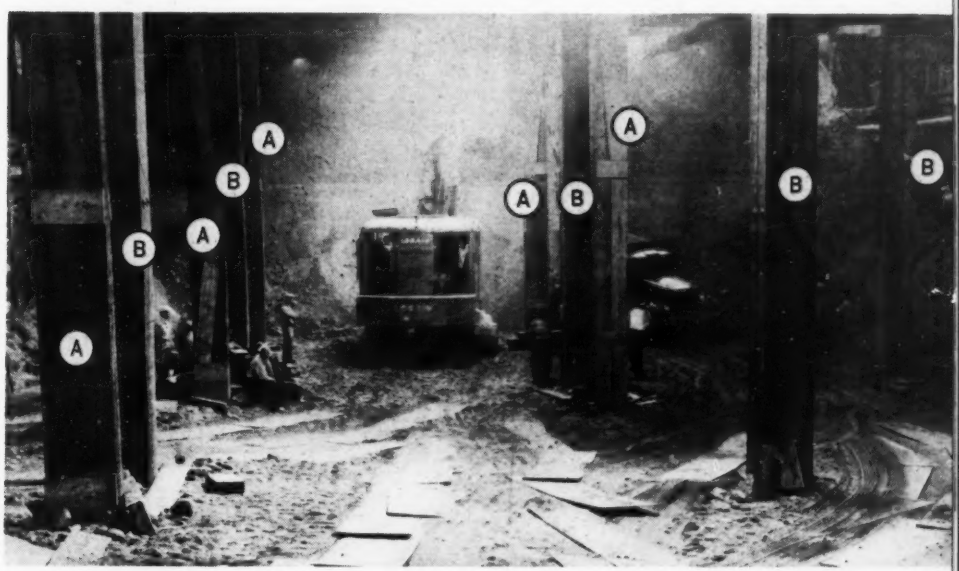
The other half of the road is

SOLDIER-BEAM PILES are driven by 40-ton Lima diesel crane whose main counterweight has been replaced by fuel and water tanks and 75-hp. high-pressure boiler that supplies steam to Vulcan No. 1 hammer in 75-ft. leads. For easier driving, Lorain clamshell rig on Mack truck excavates top layer of boulders.

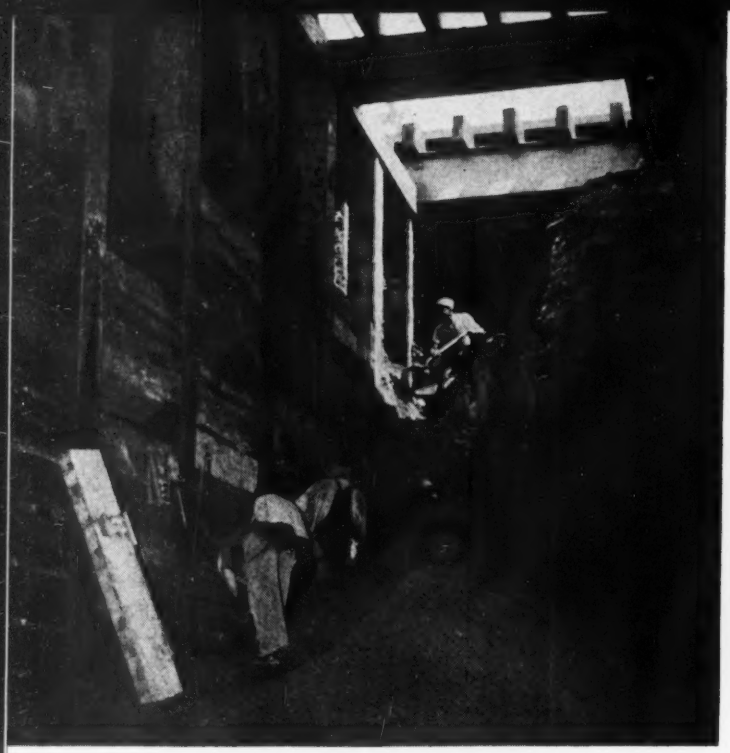
DECK BRACING is assembled in shallow cut, half-width at a time. Cap beam at right is hook-bolted to driven soldier piles, and transverse floor beams, with 5x12 spreaders and ¾-in. tierods in center, are bolted and welded to longitudinal girders. White-shirted man stands on centerline member of three-girder bracing system that changes to two-girder type in foreground.

ACCESS RAMP leads to excavation beneath busy street that is sturdily decked by 5-in. planks fastened to 6x12-in. stringers with 9-in. spikes.

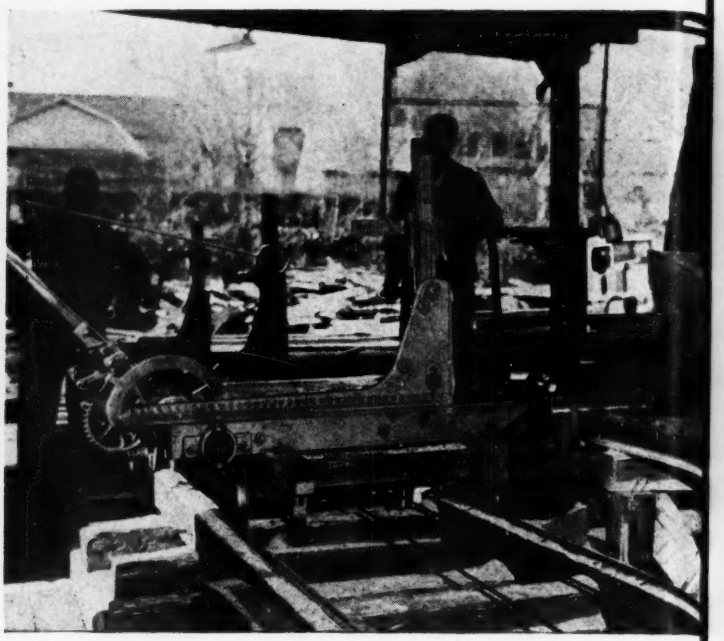
DOWN THE HATCH goes 24-in. square prefabricated timber post to support deck girder behind shovel excavation. Note smooth timber roadway decking, which totals 23,000 sq.yd. on project.



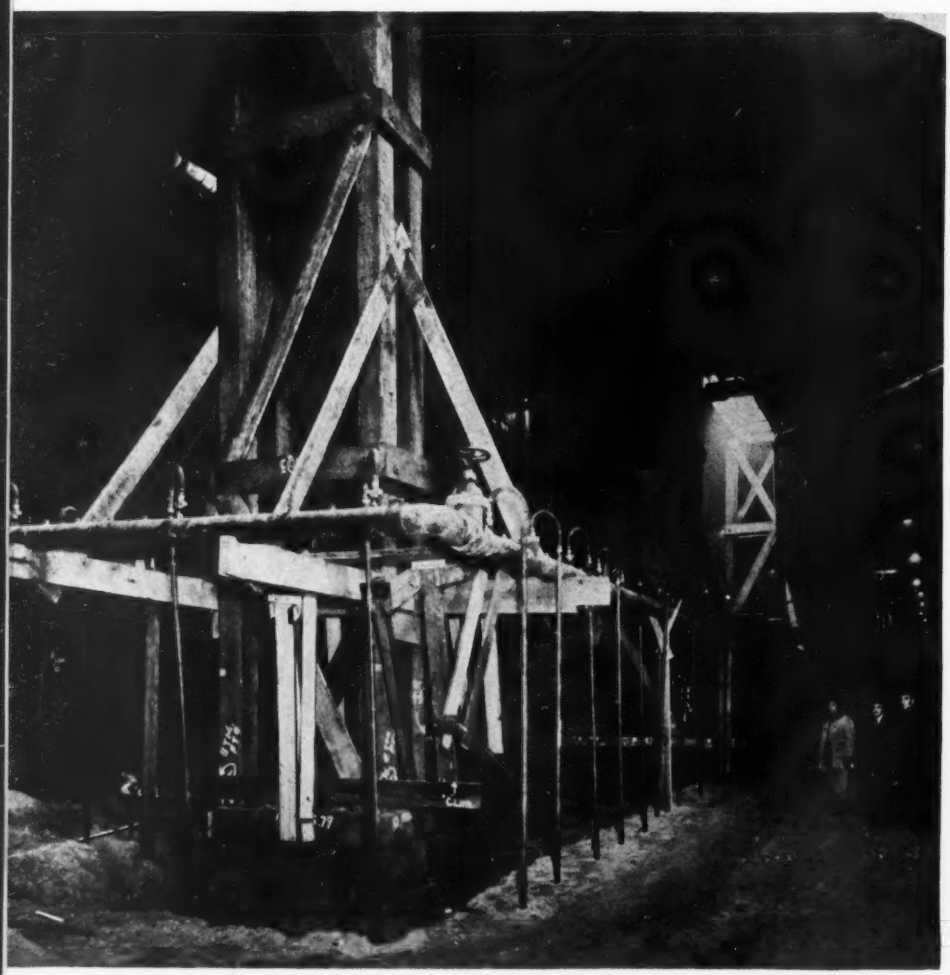
AT BREAST OF CUT in wide station area, Lorain 1¾-yd. shovel loads waiting truck. Two-timber posts (A) with diagonal and horizontal scabs are temporary supports installed closely behind shovel and later replaced every 45 ft. by quadruple-timber members (B).



TIMBER LAGGING between soldier beams is carried down with excavation. Deck opening is one of many 10-ft. square hatches with flush, removable covers that give access to work.



JOB SAWMILL with No. 1 American 40-in. saw cuts lagging, decking and bracing. Part of 4½-million b. ft. of timbering on job is salvage from Navy shipyards and local boardwalk demolition.

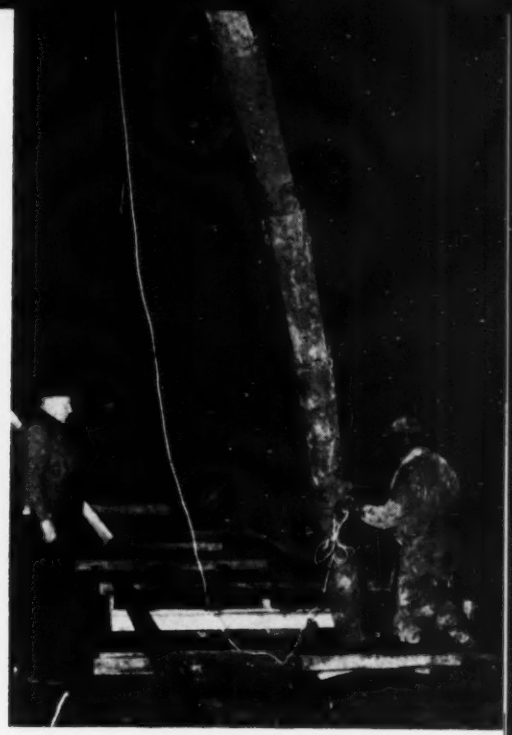


WELLPOINTS, hooked by flexible suction hose to header, lower groundwater in deep cut. Note precast concrete footing on which braced tower is wedged, also cleanliness of entire job. It would be hard to find a neater one.

similarly excavated, braced and decked while vehicles are routed over the completed section, then the entire avenue is re-opened to traffic. Thus, most of the bracing is in place before general excavation below really gets underway.

Two ramps, both clear of street traffic, give access to this excavation beneath the decking. One is within the subway area but outside the roadway, where a 13-ft. wide strip parallel to the subway was clammed out from street level for erection of a steel and timber ramp on a 15-percent grade. The other, an earth ramp, leads through a side cut to a vacant lot alongside the job.

Two 1¾-yd. shovels — a Bucyrus-Erie and a Lorain—with a ¾-yd. Lima on cleanup, excavate most of the 293,000 yd. from the subway cut, loading into trucks for disposal in dump-fills nearby. In the shallow section for one-level track, the shovels work the full face across the entire width of subway. Horizontal 2- to 4-in. timber sheeting is wedged between flanges of adjacent soldier beams to prevent loss of ground. As the shovels advance, the continuous longitudinal girders above are posted to subgrade every 45 ft. Each post is four 12x12s cut to length and bolted together above ground to make a 24-in. square member that is lowered into the cut through



CONCRETE from Jaeger transit-mixer (left) is poured through deck funnel and elephant trunk (right) to subway invert below. Subway structure requires almost 40,000 cu.yd. of concrete.

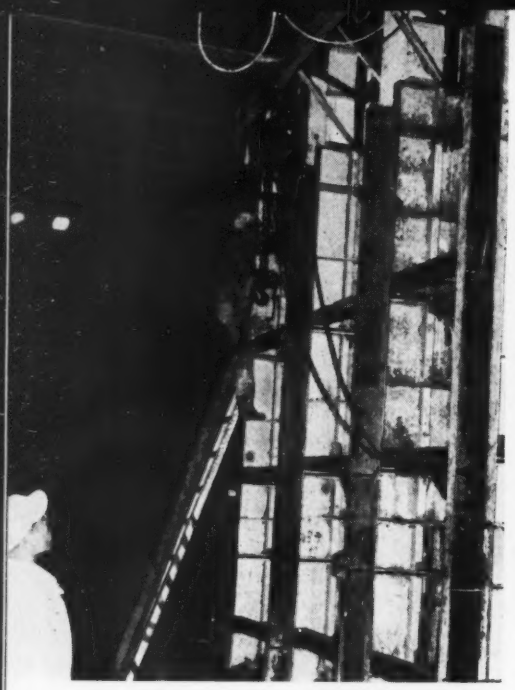
deck hatches. Posts are bolted to the girders through clip angles and are wedged to precast reinforced-concrete footings set below permanent subgrade.

In the two-level track section, excavation is in two lifts; with the first cut completed before the second is started. Here, the two overhead girders are temporarily posted to the top of the first lift, close behind the shovels. While the shovels work ahead on this upper level, sheeted pits are sunk on 45-ft. centers to below final subgrade and prefabricated 3x7-ft. towers are placed in them as semi-permanent supports for the deck girders. Towers are four 12x12 timber posts crossbraced with 3x12s. As the towers are installed, temporary posts are removed so when the shovels start on the second lift they have clear sailing, with only one tower every 45 ft. to interfere.

The cut is beautifully dry except for 900 ft. of the deepest section—and this is really wet. Here, a Complete wellpoint system pulls groundwater down 9 ft., but it takes the full capacity of two diesel-driven 8-in. pumps sucking from 100 wellpoints to do it. The wellpoints are leapfrogged ahead and re-driven to keep the water down as invert concrete is poured.

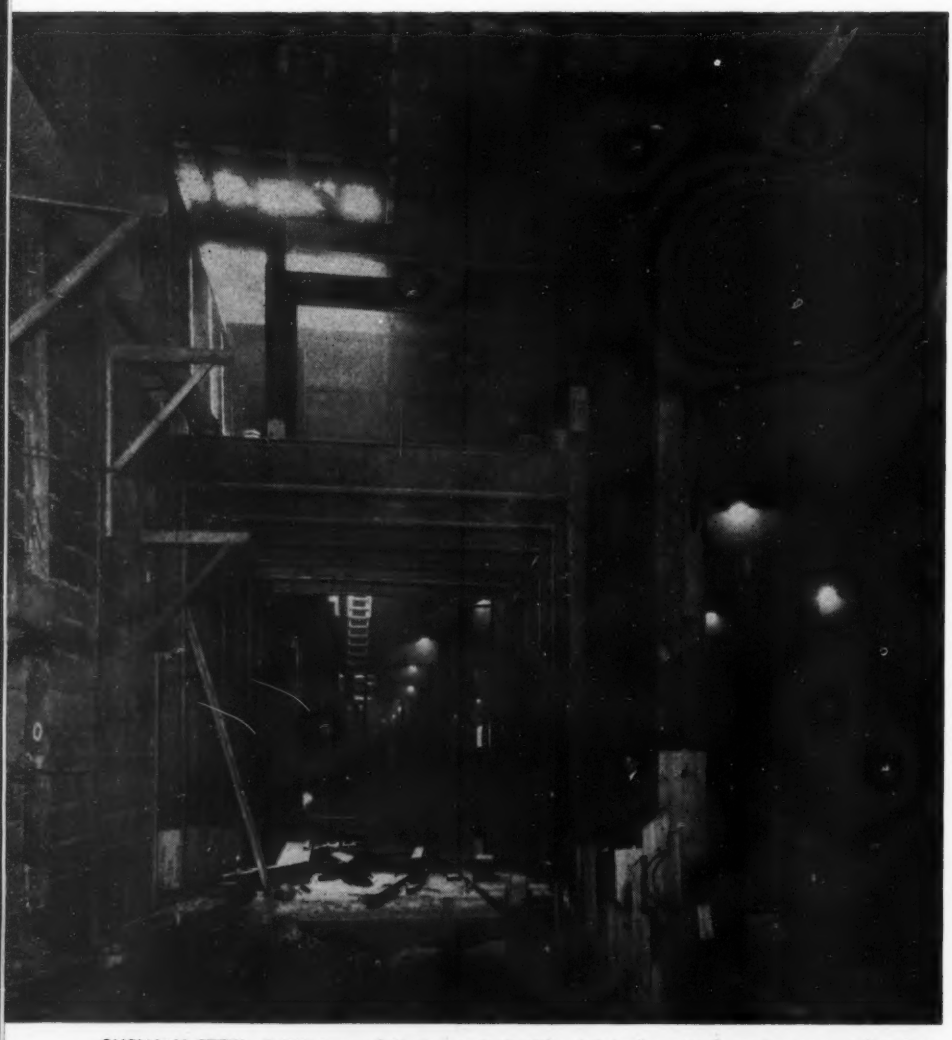
Concrete is poured and steel framing erected from street level.

STEEL SHEETPILING, heavily braced to sidewalls, holds center earth core in transition section where one-level tracks branch to two. This section is directly beneath bracing shown during assembly in another photo.



CONCRETE ARCH WALL is poured from street level in collapsible Atlas steel forms handled by Hercules chain hoist on monorail. Roof slabs will be poured later in traveler-mounted Atlas forms riding temporary rails on subway floor.

DIRECTING 5½-million dollar subway job are F. H. SCHNEIDER (left), section engineer for New York City Board of Transportation, and following, all of Van Wagner Construction Corp.: R. J. VAN WAGNER, treasurer and chief engineer; L. E. GEROSA, president; B. BERMAN, manager and deputy chief engineer; G. L. HAGERTY, general superintendent; E. J. CACACE, master mechanic; and A. PASTORE, chief expediter.



SUBWAY STEEL, 5,200 tons of it, is erected without interference from temporary bracing. Note sewer bypass supported by shelf brackets nailed to sheeting at left.

Frequent 10-ft. square hatches in the wide section, and a continuous row of removable decking between the twin girders of the narrow section, give access to the work beneath. Concrete is delivered by transit-mixers and chuted to place by funnel and elephant trunk suspended through the deck after a plank is temporarily removed. Structural steel, lowered down a hatch by crane, is telegraphed to its point of erection by loops of wire rope dropped through small oblong holes drilled in the deck planking.

The clean bracing system and the neat excavation and construction schemes have resulted in a remarkably uncluttered job. Good housekeeping is apparent throughout, and these all have made a safe, smooth-running project with little interference to street traffic.

The subway extension is being built by the Board of Transportation of the City of New York. James H. Griffin is chief engineer, Charles M. Madden is division engineer, A. A. Breitenberger is senior civil engineer and Fred H. Schneider is section engineer of construction. For the Van Wagner Construction Corp., Lawrence E. Gerosa is president, Raymond J. Van Wagner is treasurer and chief engineer, Ben Berman is manager and deputy chief engineer and George L. Hagerty is general superintendent.

Arthur L. Atherton

IF A GENIUS is one who gets a lot of things done efficiently, Arthur L. Atherton, hustling head of Atherton Construction Co., Seattle, certainly is a genius. He is not only head of his own contracting company, but is also interested in three other enterprises he helped to organize. Busy as he is with his own businesses, Art has long been active in contractor association affairs, engineering societies and civic ventures. Heading a long list of committee memberships is his current job of chairman, Building Division, Associated General Contractors of America.

Art started out in life at Skidmore, Mo., April 27, 1898, but soon followed his family to Lincoln, Neb. Here he stayed until formally educated, and then in 1919 stepped out into construction as timekeeper and foreman. For several years he followed railroad construction with Bates & Rogers Construction Corp., Roberts Bros., and Scott & White, then went on the Moffat Tunnel with Hitchcock & Tinkler.

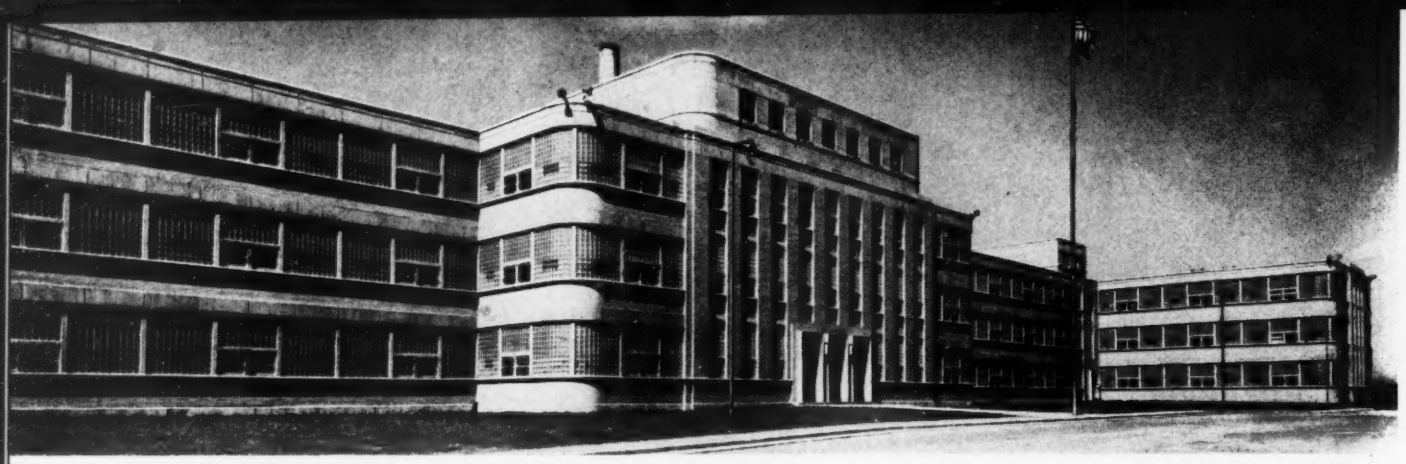
Atherton then temporarily deserted construction to become engineer for the Merced (Calif.) Irrigation Project in charge of tunnels and railroad location. After a few more engineering jobs in San Francisco he returned to construction as assistant superintendent for Byllesby Engineering and Management Corp. at San Diego. Following further construction service as superintendent for N. P. Severin Co. on postoffices and M. W. A. K. Co. at Grand Coulee Dam, he joined the Austin Co. in charge of construction, estimating and purchasing.

In November, 1937, Art organized his own building construction firm at Seattle, and has become one of the leading contractors of the Northwest. Not satisfied with one line or one company, he helped organize the Belt-Ice Corp. in 1943 for manufacturing frozen food and ice making machinery, then Morley & Associates in 1946 for development of magnesium products, and just six months ago set up Morley Magnesium Foundries, Inc., at Renton, Wash.

These business activities sound like a full time job but Atherton has managed to take a working interest in many outside affairs. He is past-president of Seattle Chapter, A.G.C., and the Seattle Engineers Club. He was closely associated with Builders of the West and the Pacific Northwest Development Association. Since 1943 he has been a member of the all-important national A.G.C. Labor Relations Committee. Other current national assignments include the A.G.C. Executive Board and Apprenticeship Committee, A.I.A. Joint Cooperative Committee, and Carpenter Apprenticeship Standards.

In his home community Art is also very active as chairman, Seattle Chamber of Commerce Construction and Civic Development Committee; chairman, Northwest A.G.C. Chapters Conference, and member of the Executive Board and several committees of the Seattle Chapter, A.G.C.

In reviewing his outside activities, Art remarked that this long list of committee assignments looks foolish. His admiring friends think otherwise, for in his energetic efforts they see the work of a man who believes in his community and his industry and is willing to devote much of his time to their betterment. Arthur L. Atherton is doing more than his share to further the welfare of contracting.



Modern Building Construction Is Made Easier if You Know All the

Tricks in Laying Glass Block

THERE ARE TRICKS in every trade, and laying up glass block in building walls and partitions is no exception. As experience develops in the rapidly-expanding use of glass block in daylighting industrial and commercial buildings, certain techniques in construction are proving most satisfactory.

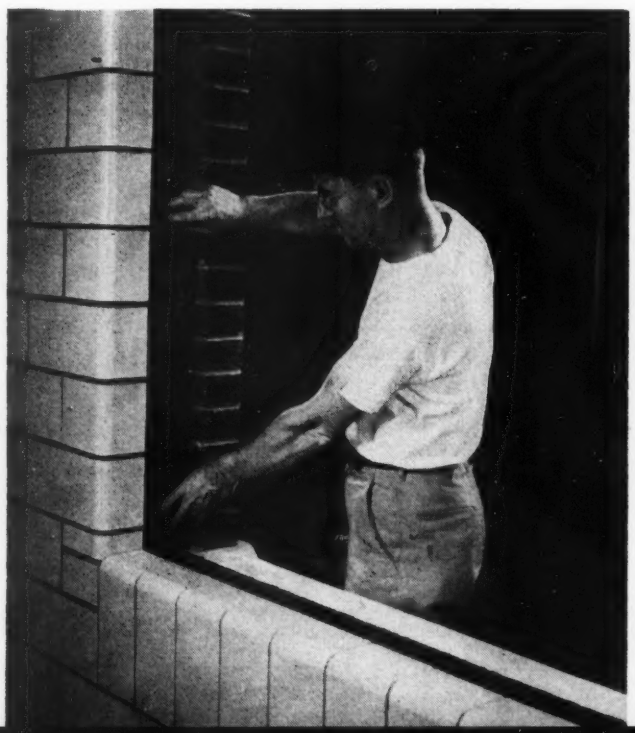
American Structural Products Co., Toledo, subsidiary of Owens-Illinois Glass Co., has outlined best field practices in a new training film: "Mortar and Glass," from which the accompanying step-by-step pictures of installing Insulux glass block have been taken. They show how methods and tools common in brick and stone masonry can best be adapted to laying up glass block panels.

Made in a wide variety of face designs for light transmission requirements, Insulux glass blocks are hollow, partially evacuated and sealed and have corrugated mortar-bearing edges coated with gritty aggregate to produce a strong mortar bond. The blocks are square, with face dimensions (nominal) of 6, 8 and 12 in. for the sizes generally used and all sizes have a uniform thickness of 3⅞ in. For industrial use the most popular size is the 8-in. block, weighing 6⅞ lb., which is the unit pictured herewith. Glass blocks are not load-bearing, and expansion joints are required at heads and jambs of all panels to protect them from direct contact with the building structure. For reinforcing panels, welded wire wall ties 8 ft. long are embedded in the center of horizontal mortar joints at regular intervals. With 8-in. block wall ties are placed every fourth course.

Jambs for panel ends are formed by chases or re-

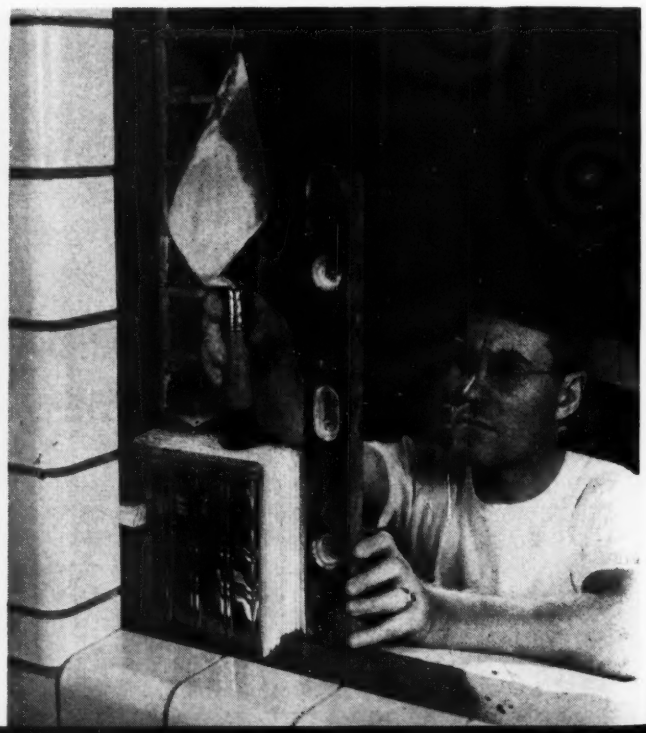
1. FOR EXPANSION

Asphalt emulsion is troweled on 1/32 in. thick on sill of panel opening as bond breaker and bottom expansion joint. Then strips of glass fiber joint material are fastened to vertical faces of jambs by gobs of asphalt on back of strip. Strip must contact sill to prevent bridging of first bed joint.



2. START RIGHT

First block must be set true and square as pattern of whole panel. Mortar is troweled on sill after asphalt emulsion has set, and first block is placed in chase at side of panel, held by temporary wooden wedges and checked with spirit level. Note rubber crutch tip on trowel handle to prevent injury to blocks.



3. CROWN THE MORTAR

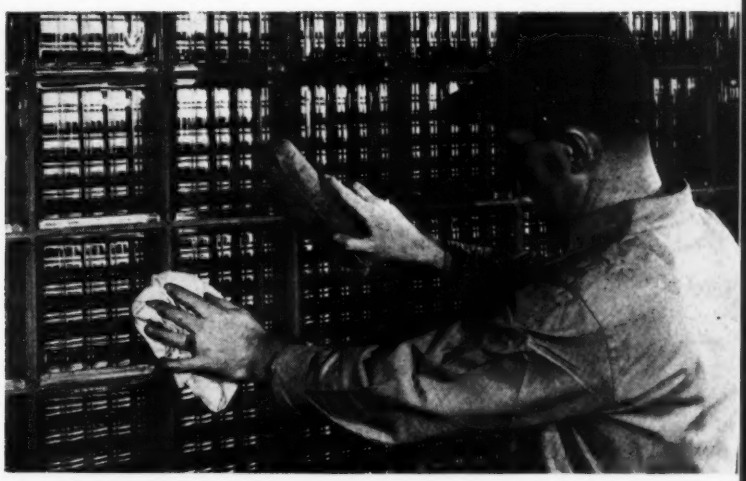
Mortar is buttered thick on top of block row previously placed, and also on edge of block being set. In both cases mortar is crowned slightly to fill corrugations in dry edges of adjoining units. Level string is stretched tight between clamps on jambs or end blades to guide setting.

4. REINFORCING

Welded wire reinforcing is placed full length in horizontal joints at regular intervals—every third course for 8-in. block. Wire tie is pushed down into soft mortar and then covered with more mortar.

5. TOP EXPANSION

Before top course is placed, strips of glass fiber expansion joint material are fastened to under side of lintel by gobs of asphalt. Clearance for deflection of lintel must be left between top of block and expansion joint.

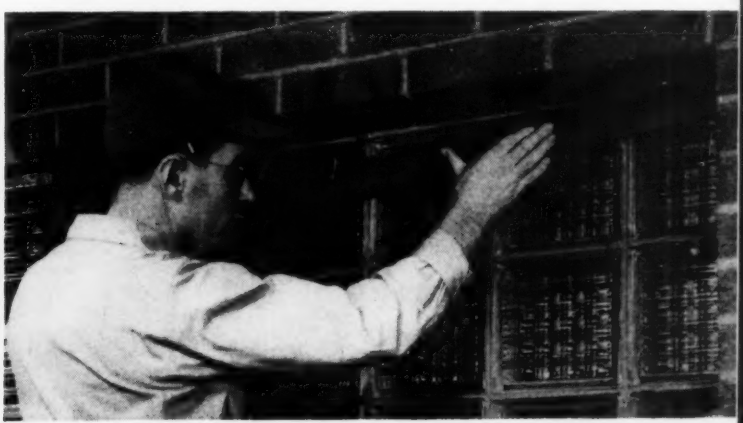


6. CLEANING

Excess mortar is brushed off both faces of block panel before mortar has set, facilitating final cleaning. Use of soft brush is recommended, followed by wiping with rag.

7. TOOL JOINTS

Tooling of joints to small lip at edge of block with smooth concave surface is done after last block is laid and while mortar is still soft. Panel is then cleaned again.



8. LINTEL ANGLE

After blocks are all set, removable lintel angle is fastened to inside face of panel. This forms top chase, similar to chases on jambs and sill, for holding panel rigidly in place.

9. CALK END JOINTS

Final step is to fill end joints between blocks and masonry with oakum packed tight into openings and then cover with calking compound at least ⅜ in. deep applied with gun.

cesses at least 1½ in. deep in the masonry wall of the building. When chase construction is not possible, panels not wider than 10 ft. may be held in place by metal panel anchors 24 in. long which extend 12 in. into the horizontal mortar joints.

Glass block are laid up with ordinary mortar mixed as dry as possible in the following proportions, by volume: 1 part portland cement, 1 part high calcium or pressure-hydrated lime and 4 parts well graded sand, 100 percent passing 16-mesh screen.

Accessories needed for glass block panel installation include: asphalt emulsion for coating sills; expansion strips for jambs and heads; wall ties for reinforcing; anchors for holding small panels in place; oakum and calking compound for waterproofing expansion joints.

Now refer to the illustrations numbered to indicate the sequence of operations in installing a glass block panel and which show details of method, tools and materials used.

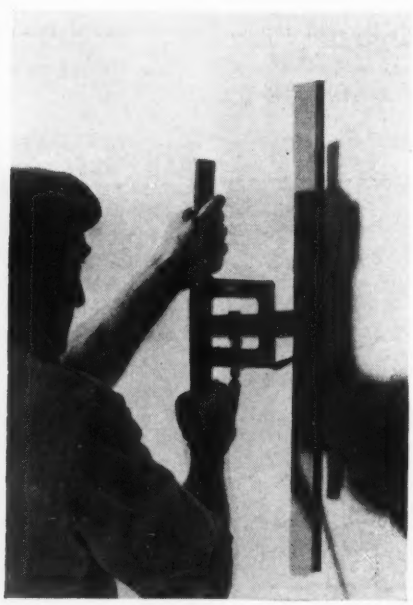
British Build Walls With Spray Gun

A VERSATILE BUILDING MATERIAL that is sprayed on wire mesh to make walls and ceilings up to 8 in. thick has been developed by C&T Painters Ltd., London, England. Called Pyroc, the new material adheres to wood or metal, and is fireproof and non-cracking.

Pyroc is a mixture of lime, cement and vermiculite. When sprayed, it sets hard in 50 min. but will take nails or screws and can be cut by an ordinary saw. The material is normally absorbent, preventing condensation or sweating on interior walls, although it can be made waterproof for exterior work. Pyroc has low heat conductivity. A 1-in. thickness becomes only hand warm when heated by blow torch, and 3 in. is considered effective fireproofing for structural steel in buildings.

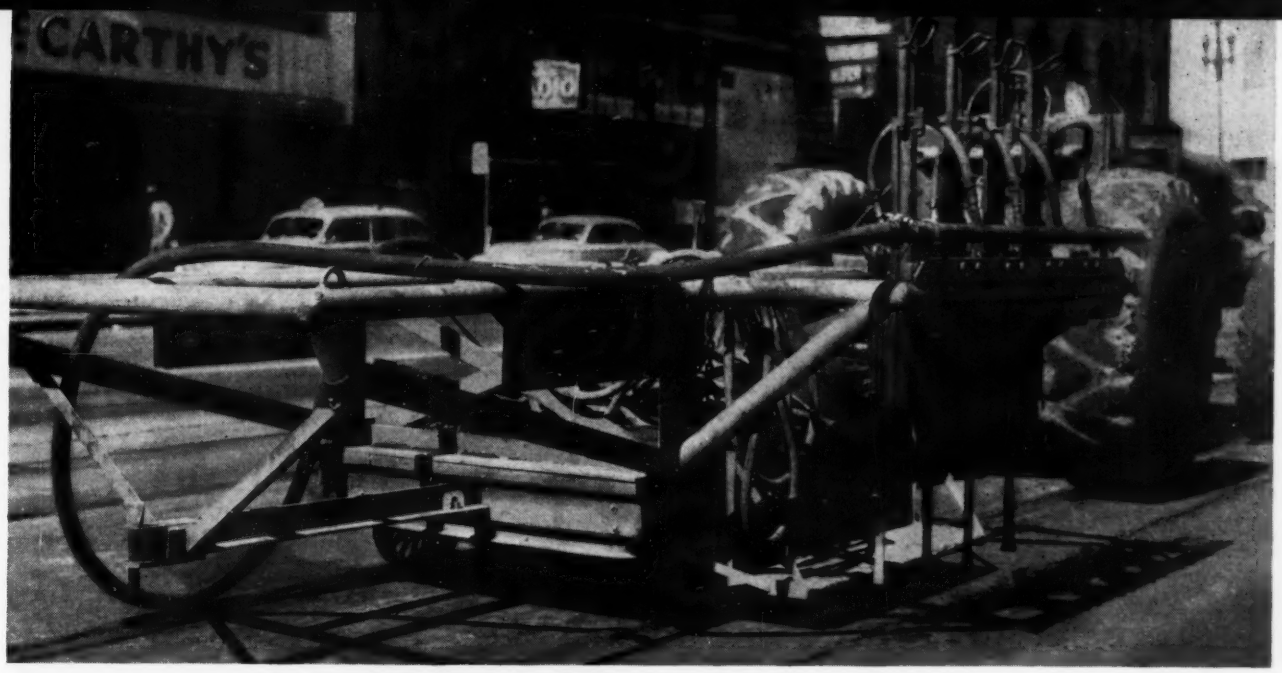
British Combine Photo

SPRAY GUN blows lime-cement-vermiculite mixture on wire mesh for built-up wall of British house. Fireproof 8-in. wall has two layers of mesh with air space between.



VIBRATING FLOAT smooths built-up wall. Float is air powered by mixer-compressor that operates wall spray gun.

SPRAYED FINISH of iridescent vermiculite granules, only one of many possible decorative effects, completes wall. Smooth wall can be painted 3 hr. after being built up.



Rail-Mounted Gang Drill Breaks Pavement . . .

. . . For Rail Removal by Tractor Shovel Hoist

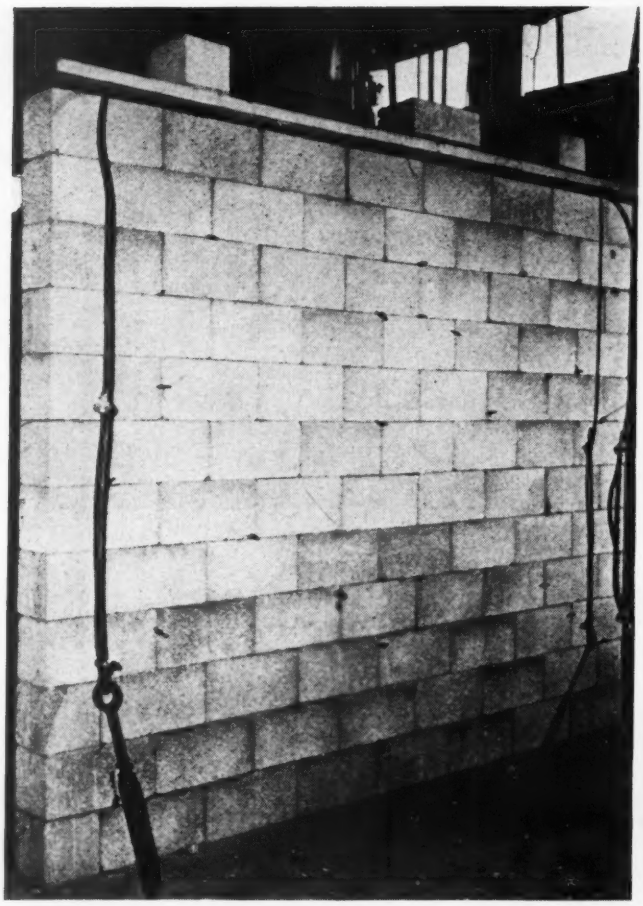
FOR RIPPING UP street car rails to relay the inner set of tracks on San Francisco's busy 4-track Market St. street railway, contractors Eaton & Smith are using some mighty clever equipment.

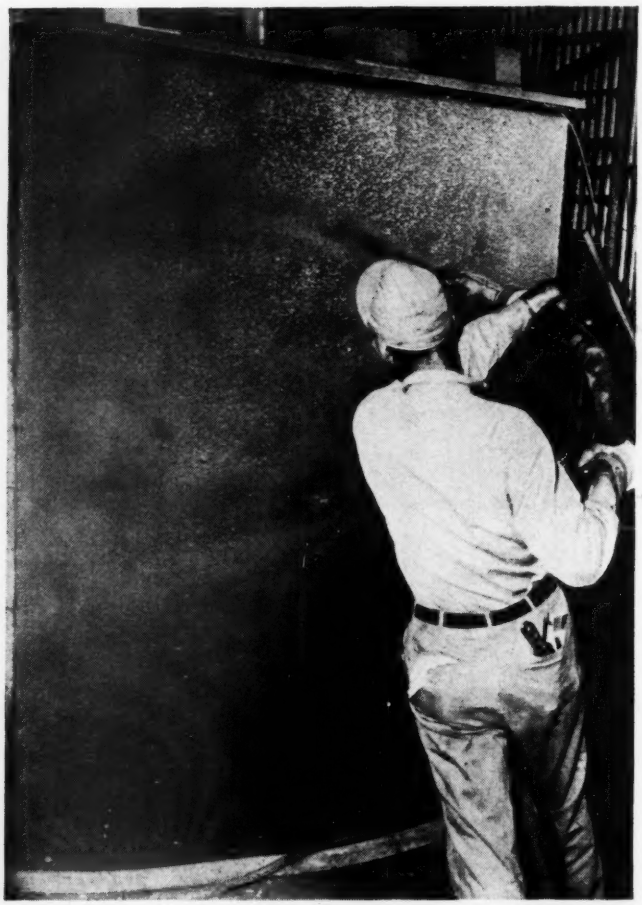
Most unusual is a rail-mounted drill carriage, holding four vertical drills set in tandem 1 ft. apart, that cuts the pavement loose along outside of rail. This rig, pulled along by a four-wheel tractor, is respotted to drill holes on 4-in. centers, which is sufficient line drilling to permit the pavement (sheet asphalt on concrete base) to break loose as the rail is lifted.

Following line drilling, the embedded rail is jerked free by a Traxcavator carrying a rail gripper mounted on a bar welded to the boom. When traffic permits this rig to work at right angles to the rail, progress is rapid, for the rail can be lifted high enough to break loose a long section. When the tractor must straddle the rail, lifting height is greatly reduced and more pulls must be made.

To eliminate head injuries resulting from hand lifting of overhead wires with 2x4 posts, the contractors designed a steel frame hoist on wheels as shown here. A hand winch lifts a 2x4 post, which can be dogged at any height, from its recess in the frame.

Robert Smith is superintendent for Eaton & Smith. Eugene Bush is resident engineer for the San Francisco Municipal Railway.





Dry-Block Panel . . . . . Shot With Jet-Crete . . .

DRY-LAID CONCRETE BLOCKS, sandwiched between two layers of Jet-Crete (air-applied concrete) result in a remarkably strong and rigid panel that promises a new type of building wall at low cost, according to tests recently conducted at Dallas, Tex. The experiments were so successful that the city of Dallas has indicated it will approve this type of construction, and the local FHA agency has asked its Washington headquarters to approve the method. Two sets of tests were made for Lewis & Lamberth, Dallas contractors, working with Coruth Building Service, block makers, by Pittsburgh Testing Laboratories and Southwestern Laboratories.

The most spectacular demonstration was made on a wall of 8x8x16-in. Haydite blocks, 8 ft. high and 10 ft. long, laid without mortar. Two cables were threaded through the end blocks for lifting slings. One side of the wall was reinforced with 6x6-in. wire mesh. Then a ¾-in. layer of mortar was shot on both faces by a Construction Machinery Co. Jet-Crete gun. After 7 days curing, a pair of channel irons was clamped to the top of the wall as a stiffener.

First test of the wall was to tilt the panel with the reinforced side on the lower or tension face. No cracks developed, so the panel was righted, then tilted the other direction with the unreinforced face in tension. Again the panel showed no distortion or cracking, so it was lowered to the floor, with the top edge held up by the angle iron. It was then loaded with 26 men, an average of 57.9 lb. per sq. ft., without cracking.

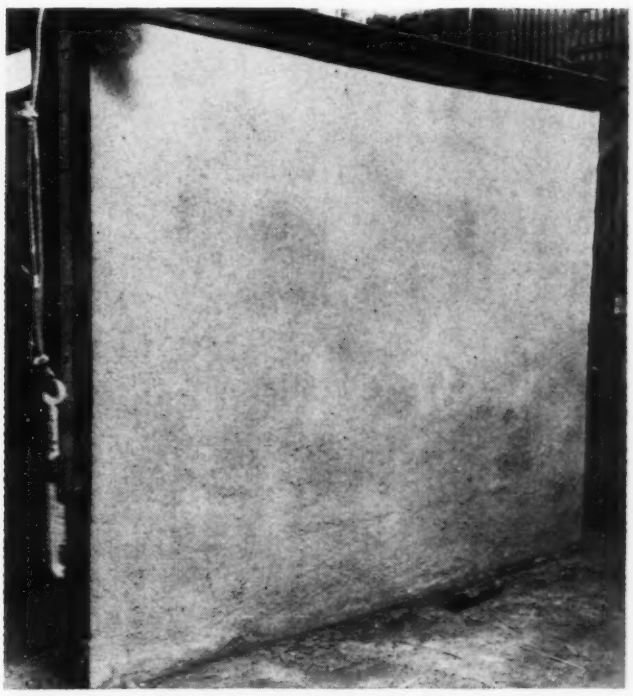
The panel was then laid flat on two angle irons, unreinforced face down, and successively loaded with 80 sacks of cement and the 26 men, a total live load of 12,153 lb., or 243.6 lb. per sq. ft. Shortage of cement stopped further loading, though the panel showed no signs of strain. Next 20 men and 80 bags of cement were concentrated on a 40-sq. ft. area, giving a live load of 275.5 lb. per sq. ft., in addition to the dead load of 38 lb. Finally, the panel was broken by dropping it against an angle iron.

Concentrated loading tests were made on smaller panels, 23x47 in., made up of 8x8x16-in. Haydite blocks. One panel was laid up dry and shot with 0.51 in. Jet-Crete on one side, 0.92 in. on the other. The second panel was laid up in conventional manner with mortar, no coating being applied. These were tested in upright position, with the wall resting on two supports 42 in. apart, by concentrated loading at top center. The plastered dry-block wall failed at 11,500 lb., the conventional wall at 4,400 lb.

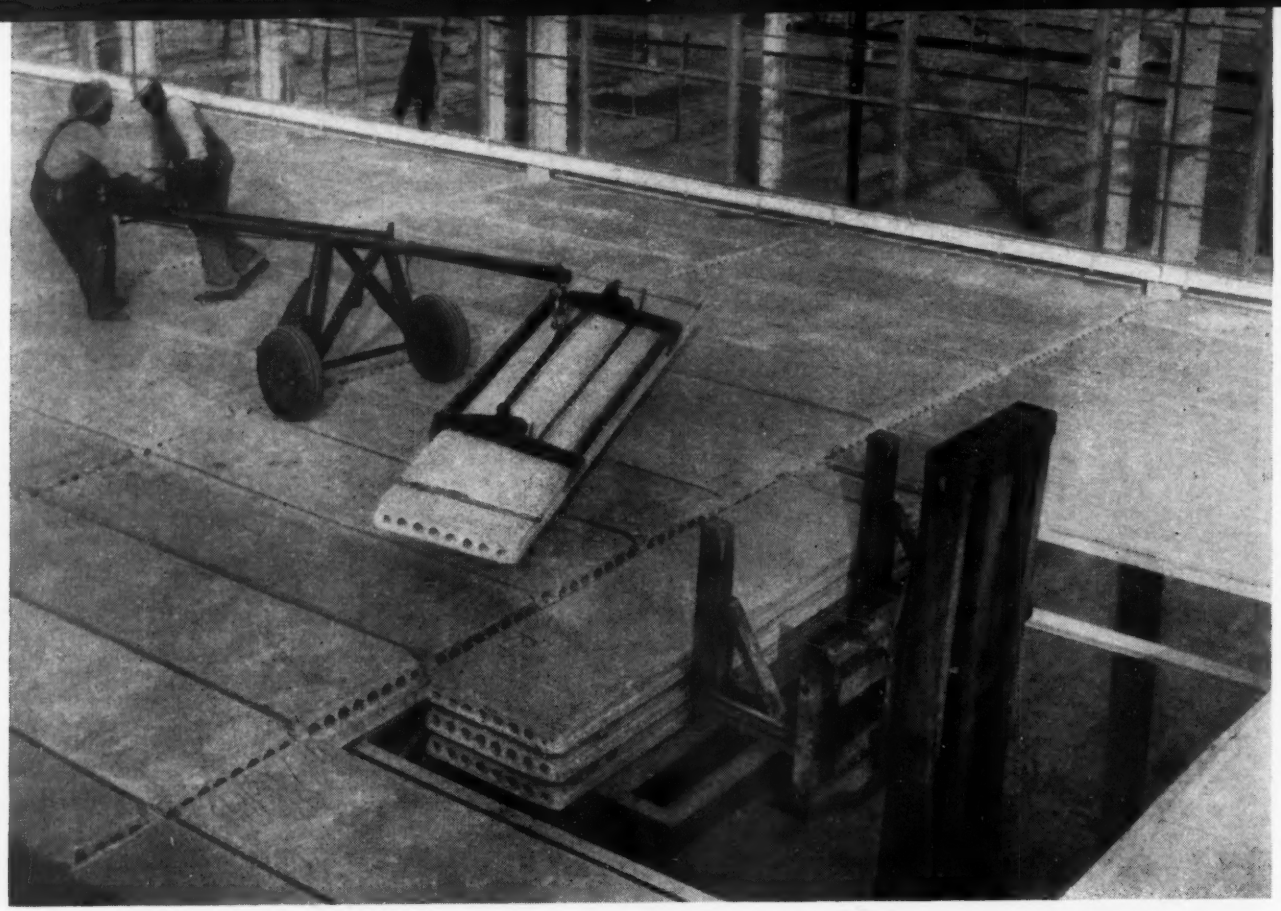
Similar panels were likewise tested in flat position while resting on two supports. The plastered wall failed under a concentrated center load of 6,770 lb. The conventional wall caved in under only 2,080 lb. loading, less than a third of that sustained by the Jet-Crete coated panel.

. . . Promises New High-Strength Wall

GUN-APPLIED MORTAR converts dry-block wall into a rigid panel that stands rough treatment like this.

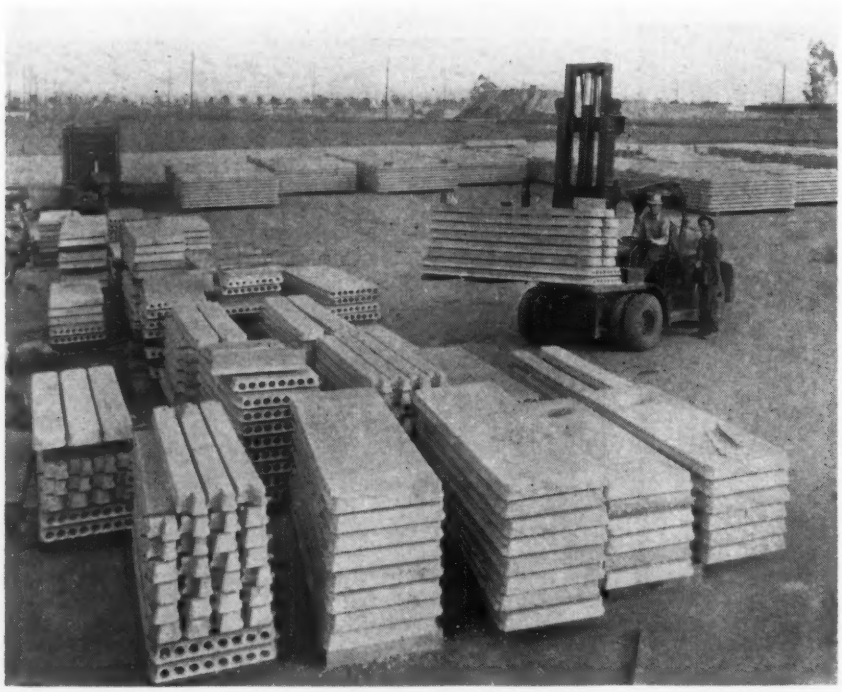


FINISHED PANEL shot with Jet-Crete indicates appearance of wall built by dry-block and mortar sandwich method.



PRECAST ROOF SLABS for American Radiator Building at Torrance, Calif., are hoisted to flat roof section by Hyster fork-lift and thence transferred to place by counterweighted two-wheel jinnywink that lifts units one at a time through toggle clamp gripping grooves in panel edges. Jinnywink is converted surplus army shell carrier.

Special Equipment Sets . . .

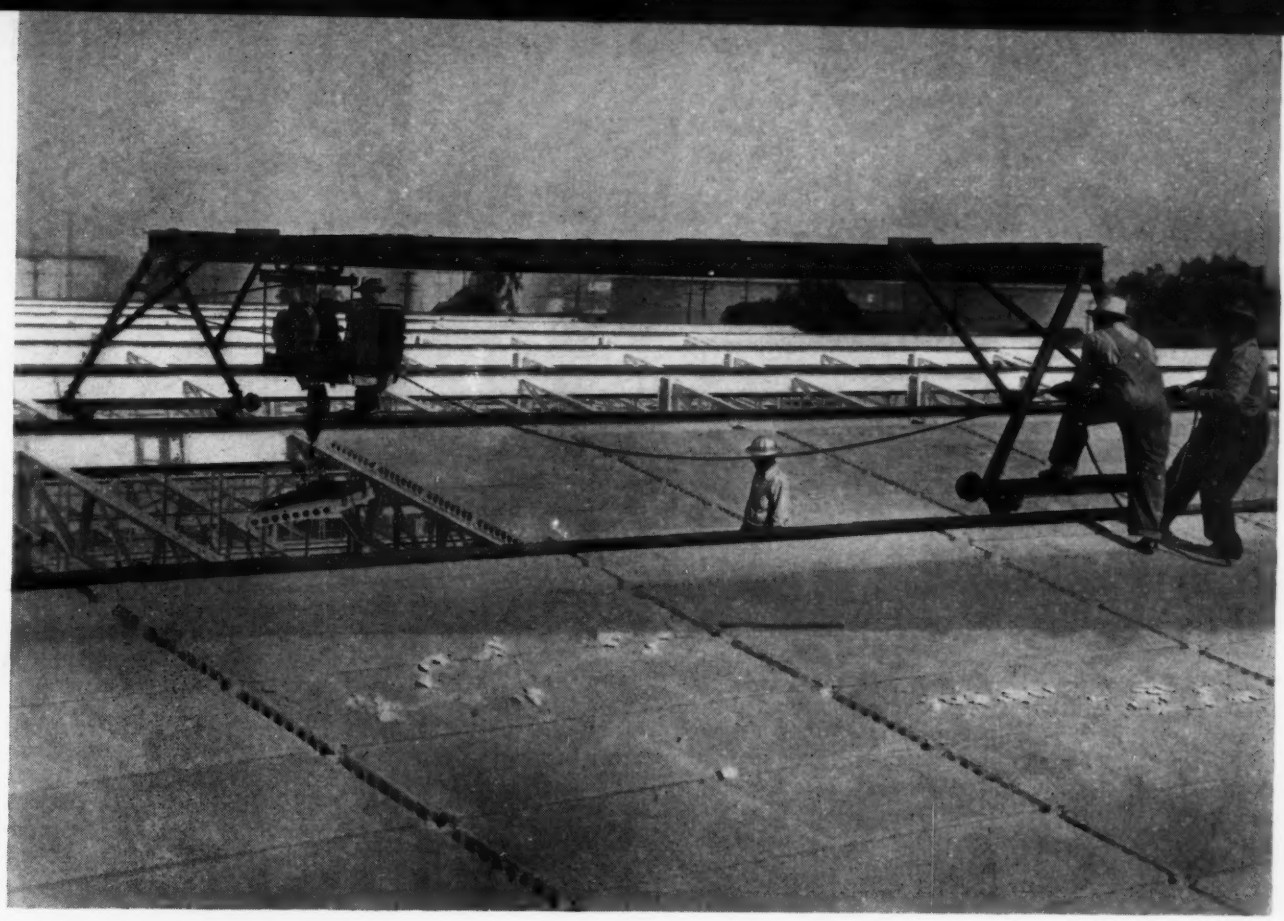


SLAB SETTING starts with Hyster fork-lift picking up a load from paved storage yard near site. Lift truck transports units to building and lifts them to lower roof levels.

SPECIAL RIGS are setting from 5,000 to 9,000 sq. ft. of precast roof slabs per day on the 11-acre roof of American Radiator & Standard Sanitary Corp. building at Torrance, Calif. For this big job the roof subcontractor, Wailes-Bageman, Inc., developed a simple gas-operated bridge crane, a rubber-tired dolly or jinnywink, an extension frame for Hyster fork-lift trucks, and a toggle-clamp sling for handling the slab units.

All slabs are 4 in. thick with grooved edges, made of pumice aggregate for lightness. Futher saving in weight is accomplished by coring out 2⅝-in. longitudinal holes with inflated rubber tubes during slab pouring. Standard units are 2½x10 ft., and weigh 500 lb. Special units are cast for skylights, ventilators and other odd-shaped areas.

Three types of roof are involved —saw-tooth, 40 ft. between ridges; flat sections at both low and high



SLABS FOR VAST EXPANSE of saw-tooth roof are set by 40-ft. span traveling bridge crane running on ridge beams. Gas engine hoist lifts slabs to deck level, then hoist and crane frame are maneuvered to placing position by ropes and hand. Auxiliary crane wheels permit moving rig from span to span over temporary bridge rails. Operator rides hoist carriage.

...11 Acres of Precast Roof Slabs

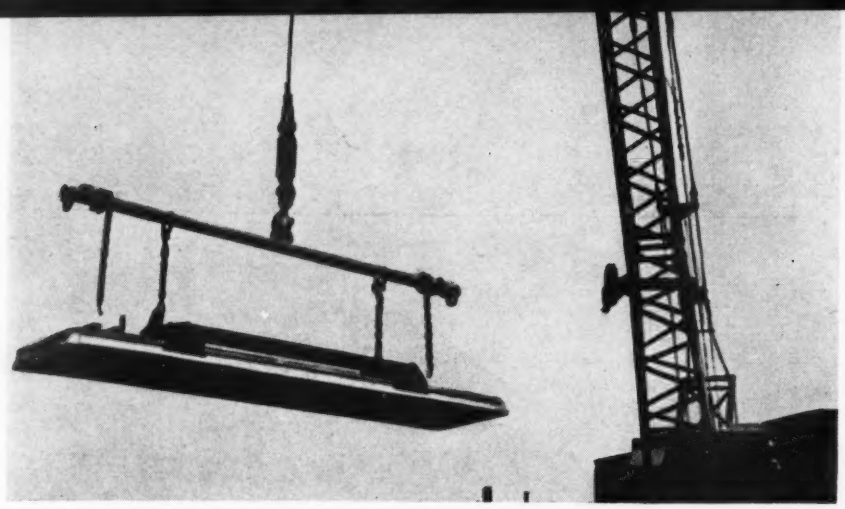
levels; and odd areas of varying pitch and height. All sections total 500,000 sq.ft.

In the saw-tooth section the slabs are placed by a special bridge crane spanning between ridge beams. A gas-engine traveling hoist lifts the slab units from ground to deck level and then the hoist carriage and crane frame are shifted by hand to spotting position.

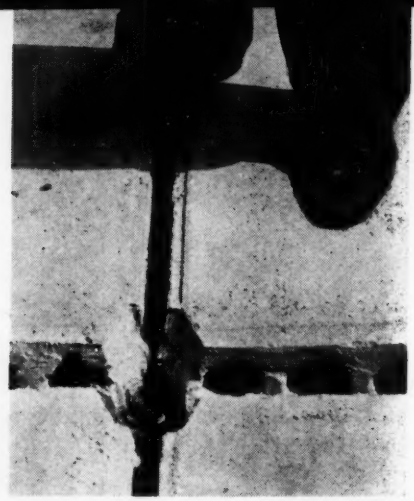
Slabs for flat roof areas are lifted to low deck levels by a Hyster lift-fork truck, and to higher levels by an extension frame on a similar truck. Here slab units are picked off one at a time by the two-wheel jinnywink, carrying a 450-lb. adjustable counterweight to balance the load. This rig was converted from a surplus army shell carrier.

For the odd roof areas the slabs

EXTENSION FRAME on one of the Hysters raises slabs to high roof level. Slabs are loaded on to high frame by regular fork-lift.



CRANE with 120-ft. boom lifts single units through toggle clamps to irregular, high or steep roof sections where lift-forks or bridge crane are not feasible.



ANCHORS for corner joints are Nelson studs welded to top of purlins. Studs project into opening formed by beveled corners of slabs. Opening is later sealed, along with longitudinal joints, by grout. Ends of slab coreholes are plugged with special disks before seal is poured.

are handled and set by a truck crane with a 120-ft. boom. The jinnywink and both cranes lift individual units through the toggle clamps that grip the slab side grooves.

Final job in slab placing is to seal all joints with grout. Two $\frac{3}{8}$x3-in. Nelson studs are first welded to the steel purlins and joists at each corner intersection through an opening formed by beveling the slab corners. Then the opening is sealed with grout, as are all joints between adjacent slabs. The cored slab openings are closed with disk plugs before sealing.

C. D. Wailes, Jr. designed the slabs, and Herbert Moore is job supervisor for Wailes-Bageman, Inc., subcontractor for Waale Camplan Co. & Smith, general contractor on the job.

Welded Rails Frame Pipeline Floats

SEVERAL INNOVATIONS were developed by the Savannah District engineer, Corps of Engineers in construction of 26 catamarans, or floating pipelines, for the District's dredge *Henry Bacon*.

Wood formerly used for pontoon frames was replaced by salvaged railroad rails which gave a more rigid construction and will better withstand wave action for a greater number of years. This type of construction also improved safety. Another change was the use of walkway saddles welded to the pipe instead of securing the walkway by bands around the pipe. Engineers claim that this will eliminate the danger of the walkway slipping with the bands during heavy seas.

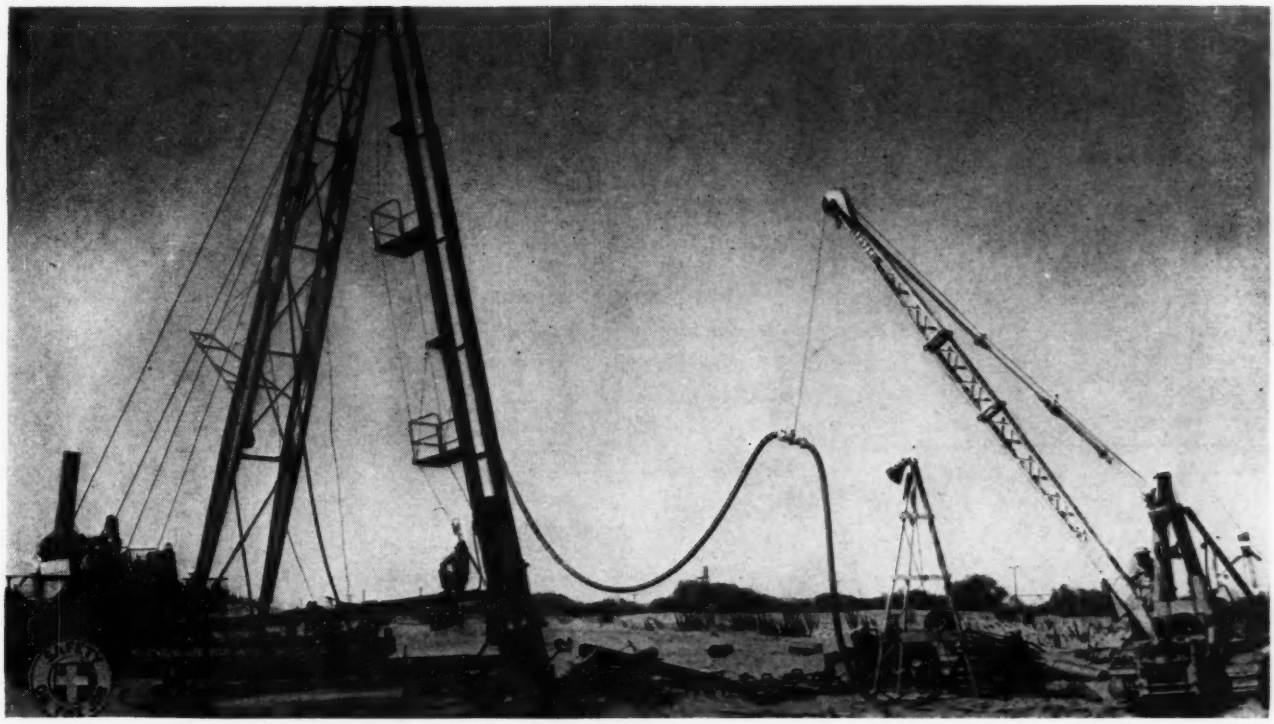
Work at the Engineer Yard at Savannah consisted of cleaning, sealing and painting 52 cylinders, welding seams and doubler plates, building pontoon frames and pipe saddles and building elbow catamarans.

This particular job was for repairing and rebuilding a 24-in. pipeline for the dredge. Manuel J. Carbonell, Jr., engineer and chief of the plant maintenance section for the district engineer, had charge of the work.

REBUILT CATAMARAN of Savannah Engineer District where salvaged railroad rails replaced customary wood for frames, giving more rigid construction. Also shown are walkway saddles welded to pipe, replacing usual bands.

The cylinders are 4 ft. 6 in. in dia. and 20 ft. long. Two of them are fastened together on 26-ft. centers by the frames, then a 50-ft. section of 24-in. inside dia. discharge pipe, complete with ball joint is installed, making each catamaran section 50 ft. long.

These improved and reconstructed sections will now provide 1,300 ft. of floating dredge pipe to carry material to shore. This line will be supplemented with additional catamarans of the same construction to make up the required 2,500 ft. of discharge pipe.



These Batter Piles Require Jetting up to 250 lb., so . . .

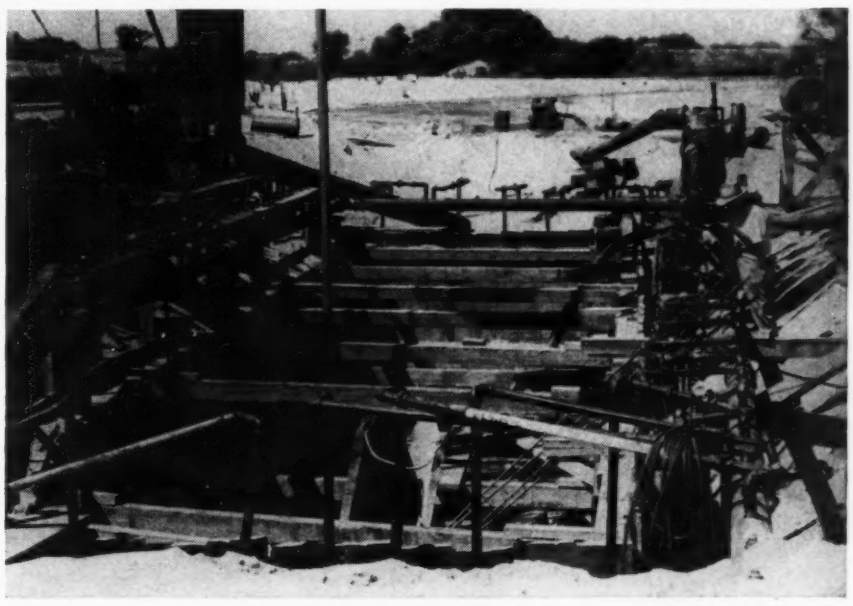
Separate Rig Handles High-Pressure Jet Hose

SAFETY PRECAUTIONS demand special handling of a long 4-in. hose carrying 250-lb. water pressure to a jet pipe for driving 40-ft. batter piles on the San Joaquin River bridge in California. To raise and lower the hose as the jet pipe moves up and down, Raymond Concrete Pile Co. uses a separate Hyster tractor crane, mounted on a Caterpillar D 7. The crane also keeps the hose clear of the pile hammer and workmen.

As can be seen from the above photograph, the Hyster crane, with its 30-ft. boom, works out in front of the skid piledriver. The crane load line is fastened to a coupling in the hose to take the strain off the connection. The crane lifts the hose clear of all obstructions and walks it along as the driver moves to a new pile location.

The same skid rig drives the vertical piles in cofferdams unwatered by a well-point system. Cofferdams 18x50-ft. require two header pipes 6 in. in diameter exhausting from well points spaced 2 ft. Each header is served by a 1,200-gpm. pump.

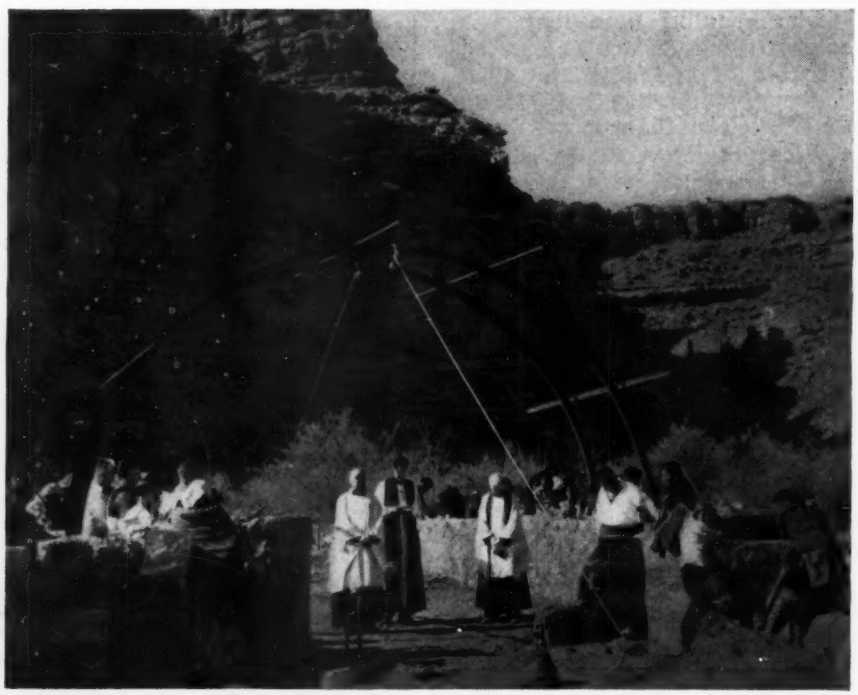
The Raymond Concrete Pile Co., O. C. Struthers, manager, is subcontractor under Charles MacClosky Co., general contractors, San Francisco, for whom W. F. Maxwell is project manager. The work is being done for the California Division of Highways, F. W. Panhorst, bridge engineer; R. M. Sherick, resident engineer. The John W. Stang Corp. designed and installed the well-point system.



COMPLETE CIRCLE of closely-spaced (2-ft.) Stang well points keeps 18x50-ft. cofferdams dry for piledriving.

FIGHTING FLOODS becomes emergency job of workmen at Newport Rolling Mill in Cincinnati as they hastily put up brick wall to keep rising waters of Ohio River out of steel plant. Acmé photo

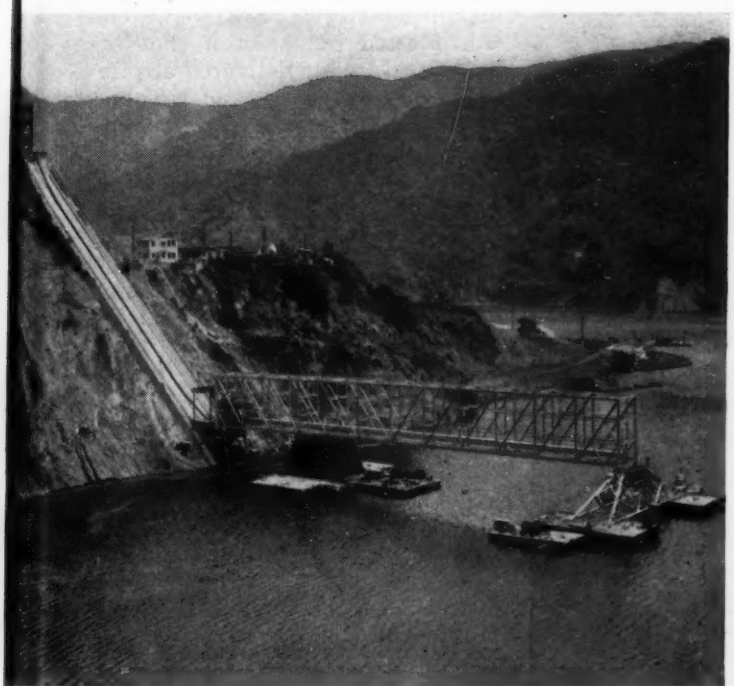
PRESIDENTIAL CERTIFICATE OF MERIT is awarded R. G. LE TOURNEAU, president of R. G. LE TOURNEAU, Peoria, Ill., by LT. GEN. R. A. WHEELER, chief of Army Engineers, in recognition of Le Tourneau contribution to mechanical effort in World War II. Witnessing presentation are REP. EVERETT M. DIRKSEN (left) and SEN. TOM CONNALLY. Press Ass'n. photo



HELICOPTER DELIVERS QUONSET CHAPEL SECTIONS from rim of Havasupai Canyon in northern Arizona to floor 1 mile below where members of Supai Indian tribe watch dedication of structure in ceremonies conducted by RT. REV. ARTHUR B. KINSOLVING II (center), Bishop of Episcopal Missionary District of Arizona. Press Ass'n. photo

MINUS STEEL FRAMEWORK is this all-concrete apartment house being erected in New York by J. H. Taylor and scheduled for fall occupancy.
Acme photo

WRECKING solid old brick-stone-steel Criminal Courts Buildings in lower Manhattan, New York City, is proving a tough job for D.E.H. Demolition Co., New York. Here pair of Manitowoc and Lima long-boom crawler cranes are picking old structure apart, piece by piece.
Mal Gurian photo



TORPEDO TESTER for Navy is this variable angle launcher for firing torpedoes into water, approximating service conditions. Trestle, 300 ft. long, supporting tubes through which torpedoes are to be fired, is raised or lowered by electric motor and counterweight on to ramp at desired angle.
Press Ass'n. photo

PUERTO RICO'S "T.V.A." includes Caonillas Dam begun in 1942 and now nearing completion. It is part of $10,000,000 power and irrigation project. Dam is 230 ft. high and will create reservoir of 50,000 acre-ft. capacity.
Wide World photo

Pipe Piles Cleaned Out by Jetting Through Hood

DEFLECTOR BONNET directs discharge from open-bottom pipe piles during air-water jet cleaning into spoil bucket (above) on new Pacific Tel. & Tel. Building at Oakland. Spilled slurry is removed from pit by pumping into tank wagons for haul disposal. Bonnet is mounted on sleeve fitting over top of pile, anchored by toggle chain fasteners (below) to Downs Plate Grips pressing against pile through slots in sleeve.

OPEN-END STEEL TUBES proved best for a tight pile job on part of the foundation for the new Pacific Tel. & Tel. Building in Oakland, but they had to be cleaned out, inspected and then filled with reinforced concrete. Cleaning could have been a tough job, but Raymond Concrete Pile Co., subcontractor on the work, made it simple with a high-pressure combination air and water jet and a deflecting hood that directed the effluent into a waiting bucket alongside.

After most of the spoil was removed by the combination jet, the bonnet was taken off and the remaining material, mostly water, was blasted out with a shot of high-pressure air delivered at pile bottom by another jet pipe. Then, to meet specification requirements for a compacted base, a ram made up of a 20-ft. length of 8-in. steel beam, fitted with a 16-in. disk base, was dropped down the pile to clear off the walls and, through repeated dropping, to compact and seal the bottom.

A total of 246 18-in. pipe piles, from 48 to 60 ft. long, were driven in a small area to carry concentrated building loads. A combination of concrete slab under light-loaded areas and the piles under heavy loads is calculated to give uniform settlement over the entire area. In this case caissons would have resulted in too much load concentration on the soil, and concrete piles could not be driven without interference and excessive ground heave. The open-bottom tubes were the answer here, but of course, the piles were left filled with tightly-packed spoil after driving.

A 4-in. jet, taking air at 115 lb.

FINAL CLEANING of piles is by shot of air at high pressure causing considerable spatter but no harm. Air blast blows all water out of pile.

STEEL BEAM RAM, with circular base dropped down cleaned pile, scrapes all mud off walls and compacts 3-ft. seal at bottom under repeated drops as pile hammer. Piles are then filled with reinforced concrete.

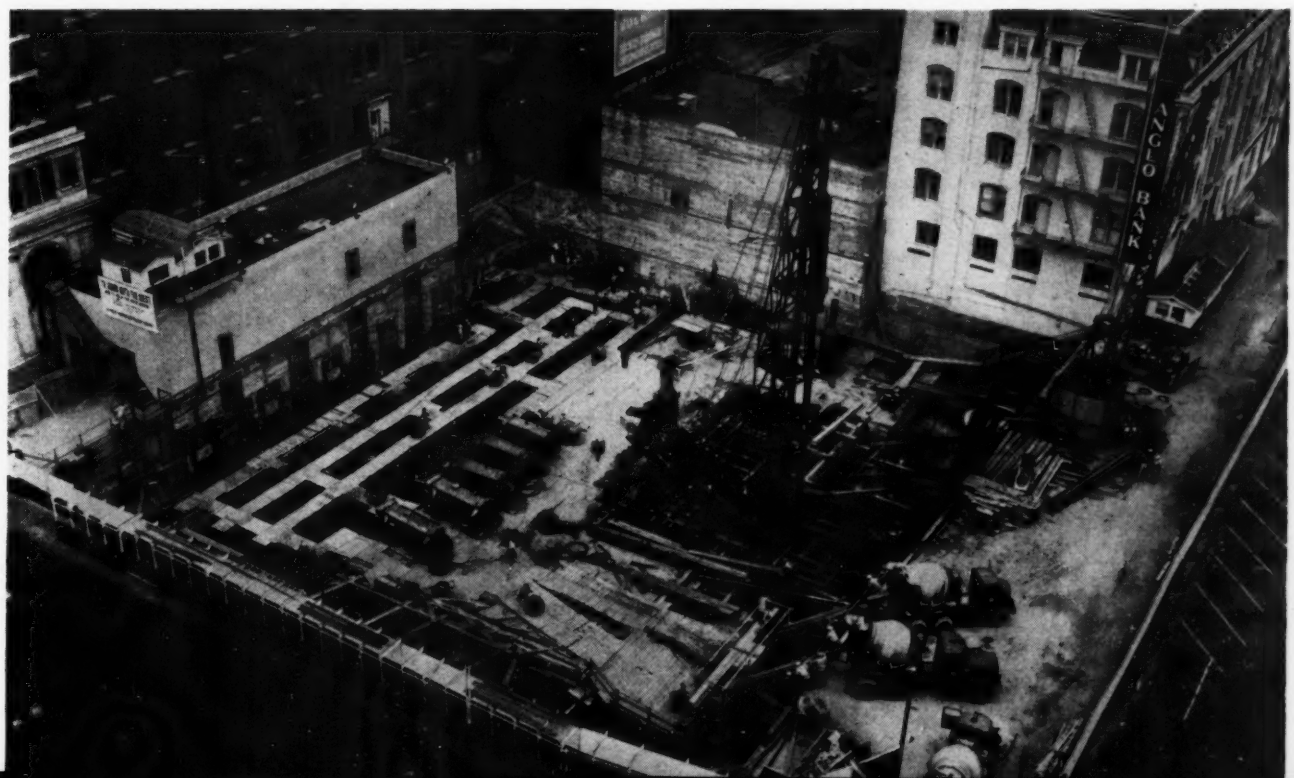
from a bank of Gardner-Denver portable compressors, and water from a 600 gpm Byron-Jackson pump at 100 lb. was fine for cleaning out the piles, but some method of controlling the discharge had to be devised. The deflecting bonnet was the answer, but some experiment was necessary to determine the best position of the hood and its fastenings. The jet pipe went through a hole in the hood, and the bonnet was eventually fastened to a sleeve fitting over the pile, being held by a chain toggle clamp whose lugs gripped the pipe through slots in the sleeve.

Most of the ejected spoil, in the form of slurry, went into a 5-yd. bucket, but there was also considerable spillage over the sides. This slurry, some 50,000 gal. of it, was removed by a mud pump discharging into tank trucks for hauling away to avoid clogging the sewers.

After the piles were cleaned, their seals compacted and inspected by a lowered light and mirrors, the tubes were capped by inverted steel half-barrels to keep them clean while waiting for concrete.

Ed Whitney was superintendent for Raymond Concrete Pile Co., assisted by Vern Luft, Ken Rickett and Jim Nelson. Dinwiddie Construction Co., George Horne, superintendent, held the general foundation contract. For the Pacific Tel. & Tel. Co. Walter W. Eakley is in charge of construction and Andrew M. Byrne is resident engineer.

PIPE PILES (below) are driven with standard Raymond revolving skid driver mounting heavy Vulcan No. 0 hammer carrying 10,000-lb. ram. Piles are placed only under foundations carrying extra heavy loading; concrete mat supports rest of structure. Bank of portable compressors furnishes air for jet cleaning piles.



It takes plenty of push

to work under

conditions like this

so there are plenty of

Push Plates at Operation Earthmover

AN EARTHMOVING BLITZ hit Peoria, Ill., recently when a big civic promotion stunt under the name Operation Earthmover resulted in excavating 250,000 cu. yd. for a new fair grounds site in 41 hr. For carrying scrapers to move a quarter-million yards in a little more than a day and a half, the rigs must be loaded heaping full—and fast. Pusher tractors were the answer here, for a large fleet of them nudged the pans along to pick up big loads in the cuts and start them on their way to the fills in a hurry.

Operation Earthmover will be described in next month's issue, but the editor covering the spectacle was so fascinated by the variety of push plates he found on the job that he gathered up all his pusher pictures in one bunch, and here they are—sort of a special preview of the coming story.

EVEN PATROL GRADERS on haul-road maintenance, like this Caterpillar No. 12 of R. A. Cullinan & Son, Tremont, Ill., are equipped with push plates to help pan scrapers along.

SQUARE CUPS, with high sides to hold them on scraper push bars, are welded to cable-controlled yoke. Tractors are International TD24 (above) with Bucyrus-Erie plate and Caterpillar D8 (below), both lent by Swords-McDougal Co., Peoria, Ill.

ROUND DISHES are also popular with Swords-McDougal. Heil plate on their TD18 (left) is pinned to pusher attachment frame for parallel contact with scraper, while plate on D8 (right) is welded to yoke.

FLAT PADS fastened rigidly to Allis-Chalmers HD19 (left) of Dunmire Equipment Co., El Paso, Ill., and Caterpillar D8 (right) of Jansen & Schaefer, Pekin, Ill., are necessarily larger than movable plates so tractors can maintain contact with scrapers.

LEGAL ADVENTURES OF TRACTOR CONN

By LESLIE JOBB

By recounting the experiences of Tractor Conn, who symbolizes the average contractor, this series of articles, each based on the decision of an American court and presented in plain, non-legalistic terms, is designed to help construction men avoid costly legal pitfalls.—Editor

The Case of the Governing Law

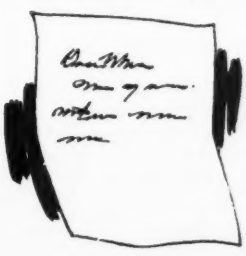
A Chicago citizen, who owned land in Georgia, journeyed to New York, and signed a contract with Tractor Conn to erect a building on the Georgia land. A month after the work started a dispute arose in reference to the work and the proper interpretation of the contract.

"I am a permanent resident of Illinois, and the question must be decided according to the law of that state," said the owner.

"I don't care where you live. The contract was signed in New York, and the laws of that state will govern," Conn maintained.

"It is immaterial to me where you live or where you signed your contract. The work was to be done and the contract was to be performed entirely in Georgia, and I'm relying on the Georgia law," a subcontractor interposed, and the Georgia Courts ruled in his favor in the case of Thurman vs Kyle, 71 Georgia Reports 628.

The Case of the "Unsigned" Note



"Quite a lot of bills coming due the end of this month," Tractor Conn observed.

Well, we'll just have to bill everyone to pay up or at least send a note that we can use in the bank," the bookkeeper suggested.

"Go ahead and write them all," Conn urged. A week later returns began to come in, cash, checks, and the following document:

"One month after date, I, Ray A. Tedlie, promise to pay to the order of Tractor Conn the sum of nine thousand and eighty-five and 75/100 dollars at the Contract Bank."

"Say! Here's an odd one. Tedlie's note is for the correct amount of his account but it's not signed," Conn pointed out.

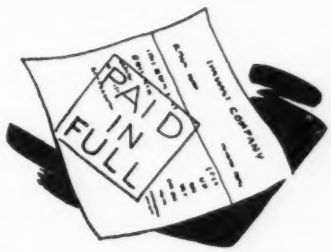
"Is it in his handwriting?" the bookkeeper queried.

"Yes, but I've always understood it isn't any good unless he signs it at the end. But I'll see what the bank says about it," Conn declared.

"Sure the note's good," the cashier assured him and the cashier was right.

"If the name of the party whose signature is required is written by him in any part of the instrument, for the purpose of authenticating it, it is a sufficient signature," says the Pennsylvania Supreme Court, in dealing with a parallel case.

The Case of the Disputed Check



A too shifty owner owed Tractor Conn a bill of long standing, and there was an honest-to-goodness dispute as to the amount of the bill.

"$2,557 is every cent I owe you," the owner contended.

"$3,132 is the correct amount, and I'll not take a cent less," Conn maintained.

Then the owner mailed Conn a check for $2,557.

"I am inclosing herewith my check for $2,557 in full for my account to date. Take it or return it," the owner wrote. Tractor Conn endorsed the check, cashed it at the Contract Bank—and sued for the balance.

"My check was tendered to you in full settlement," the owner protested.

"But I refused to accept it on that basis," Conn retorted.

"Then, if that's the case, you should have returned the check to me, or at least written me that you were not accepting it as full payment. Having accepted it and cashed it, you cannot claim that it was not in full payment," the owner's lawyer argued, and the Court ruled in his favor in a case reported in 213 N. Y. S. 81.

More Legal Adventures of Tractor Conn Next Month

READY for a pull across the Ohio River are two 12-in. pipelines to increase winter gas supply for Cincinnati. This is one of two similar projects installed in fast time to meet winter deadline.

Gas Lines Pulled Across Ohio River

FOUR 12-IN. PIPELINES were laid in record time last winter under the Ohio River near Cincinnati to beat the deadline of wintertime demands of that city for additional gas. The work involved two projects—both vital links in the supply line between Cincinnati and Foster, Ky., where it connects with other lines.

One project was two 12-in. lines under the river from Covington, Ky. to Cincinnati to replace a worn-out multiple river crossing. The other included 2.3 mi. of 24-in. pipe from Cold Springs, Ky. to Brent, Ky., plus two 12-in. lines under the Ohio at that point. Provisions also were made for two additional lines to be installed this year.

The Cincinnati Gas & Electric Co. made a connection with the eastern end of this river crossing and laid 5 mi. of 24- and 20-in. pipe on into Cincinnati.

Both river crossings and the Cold Springs-Brent section of pipe were installed by the Central Kentucky Natural Gas Co., a Columbia Gas System affiliate of the Charleston Group Companies, of Charleston, W. Va. Williams Bros. Corp., Tulsa, Okla., were the general contractors, subletting the river dredging to the Monongahela and Ohio Dredging Co., Pittsburgh, Pa.

Work on the 2.3 mi. of 24-in. pipe was started Dec. 20, 1947 and completed in 33 days. The pipe was grade X-52, with 5/16-in. wall thickness, made by A. O. Smith Corp., Milwaukee, Wis. It was electric-arc field welded, with Fleetwood No. 5 rod used for the stringer bead and for the first filler bead, No. 85 rod for the two additional beads, and No. 5 for the cover bead.

This 24-in. pipe was received at one location where it was primed, cleaned and yard-coated with 3/32-in. of Bitumastic 70-B enamel with one Fiberglas wrapper and one wrapper of Kraft paper. It then was hauled by truck to the

← PIPE SECTIONS are welded into long lengths on shore and cast-iron weights are added to overcome buoyancy. Then fleet of Caterpillar tractor cranes walks each section into river, where all are welded into continuous line at river edge. Derrick boat then pulls pipe across river, assisted by winch tractors on far shore.

TWO DIPPER DREDGES loading into dump scows excavate 15-ft. trench in Ohio River bottom to receive dual pipelines. Shore approaches are dug out with draglines.

job and strung along the right-of-way.

The pipe was bent, as necessary, in the field by a bending machine, using the cold-wrinkle process, with a 2-deg. maximum allowable bend in each wrinkle. Large bends of short radii were prefabricated.

A 36-in. wide ditch was excavated by trenchers and backhoes, deep enough to give at least 28 in. of cover. Backfilling was by bulldozer.

Grade B seamless pipe, with ½-in. wall was used for the 12-in. river crossing between Covington and Cincinnati. Dipper dredges excavated trench 15 ft. below pool stage, for a minimum cover of 3 ft. below riverbed.

Pipe was welded onshore in long sections. Each welded section was picked up by pipelaying tractors and shoved into the river, each succeeding welded section being joined to it by the electric-arc method just before entering the water. A derrick-boat, anchored in the Ohio River, aided in pulling the lines across the river to a point where they could be reached by winch lines from Caterpillar tractors anchored on the far bank.

Each circumferential weld was reinforced with a split-type welding saddle. Both 12-in. lines were 1,600 ft. long from header, with 1,200-lb. cast iron river weights installed every 40 ft. to offset buoyancy. This river crossing was completed in 62 calendar days.

Similar methods, and the same size and grade of pipe, were used for installing the two 12-in. lines beneath the river at Brent, which measure 2,300 ft. from header to header. This section of line, which was started last Oct. 6 and completed in 33 days, also used split-type welding saddles for reinforcing the circumferential welds, and cast iron river clamps to offset buoyancy. Draglines excavated the approaches for both river crossings.

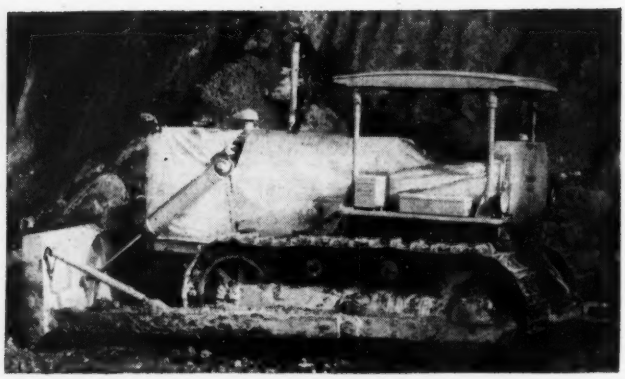
New Supply of Building Craftsmen

CEREMONIES attended by the Governor of Minnesota, mayors of St. Paul and Minneapolis, contractors, labor leaders and vocational teachers marked the recent graduation of 320 building trades apprentices sponsored by the Twin Cities Building Construction Trades. Graduates, representing 21 trades, were entertained at a banquet attended by 725 persons. Speakers included J. L. Morrill, president, University of Minnesota; Wm. F. Petterson, director, U.S. Dept. of Labor Apprentice Training Service; Wm. McCarthy, president, International Ass'n. of Marble, Stone and Slate Polishers and James D. Marshall, assistant managing director Associated General Contractors of America. R. J. Hendershott, manager, A.G.C. of Minnesota, was toastmaster. More than 2,600 apprentices are now in training in Minnesota.

FOUR APPRENTICES, representing 320 building trades graduates, are congratulated by **JIM MARSHALL** (left) A.G.C. labor head, at Minneapolis ceremonies marking completion of apprenticeship training. The four are **LAWRENCE V. PRYTZ**, cement finisher; **RAYMOND H. SCHMIDT**, plumber; **ROBERT W. MESENBRING**, bricklayer, and **RAY M. McLEAN**, carpenter.

HOW ...they did it

BY PUMPING CONCRETE to deck forms for twin 671x28-ft. roadways of Maine Turnpike's Saco River Bridge, Ellis C. Snodgrass, Portland contractor, paved structures in only four days. Here, Lima crane lifts 1-yd. bucket of transit-mixed concrete to hopper of Rex Pumpcrete machine for placement.

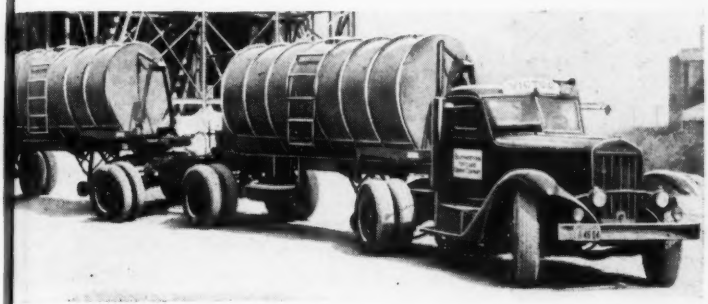


WINTER OVERCOAT for Caterpillar tractor extends past cab seat, retaining heat from diesel engine and keeping operator warm during Minnesota sub-freezing temperatures.

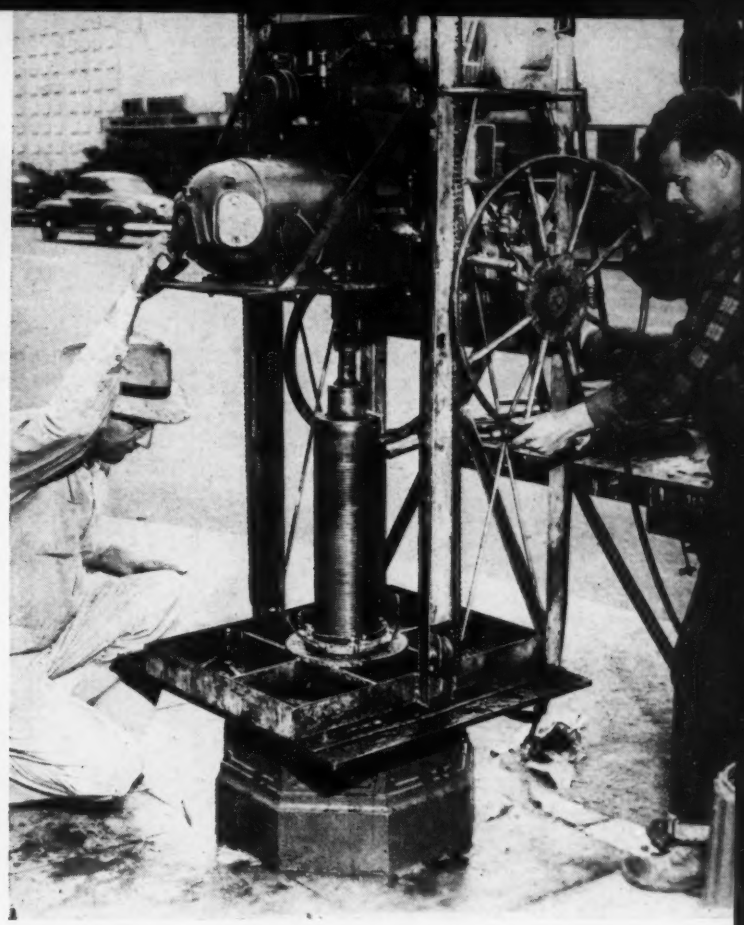
LUMBER-TRUCK UNLOADER, for handling lumber without breakage, consists of arm and extra roller supporting tail end of load, pivoted under rear end of chassis and held in position by hydraulic cylinder attached to bell crank. To unload, lumber is rolled back, hydraulic control valve is opened and load rolls off gently, rear end to ground. Truck then is moved forward until front of load rests on unloader arm which is lowered to ground. Loader is being used by Penberthy Lumber Co., Los Angeles, Calif.

COMBINATION STEEL SHIPPING CONTAINER and portable job tool house has been developed by Contracting Division of Dravo Corp., Pittsburgh. All welded weatherproof box is 277-cu.ft. capacity, is equipped with lifting lugs and can also be moved by an industrial truck. Hangers for tools can be welded to inside or fastened to wood nailing strips. Box will hold and transport up to 6 tons of tools and equipment.

SLOPING OF CUT on highway realignment project near Syracuse, N. Y., is done accurately with aid of all-hydraulic control on Warner & Swasey Gradall machine operated by Pepper Bros.



BULK CEMENT TANK TRAILERS haul 115 bbl. of cement in single load to customers of Southwest Portland Cement Co., Victorville, Calif., thus eliminating sacking costs and saving double-handling charges for users with silo storage. Fruehauf semi-trailers are used.



ROTARY DRILL puts 6¼-in. dia. holes 3 ft. down into concrete pavement to accommodate new 26-ft. high light standards on Hollywood's famous "Radio-Row." Drill, product of Rotary Concrete Drill Co., Pasadena, Calif., made 707-cu.in. cut through straight concrete in 25 min. When cable, steel pipe or electrical conduit were encountered, job took as long as an hour. Contractor, Zeibarth Contracting Co., Long Beach, Calif.

TIRED OF HORSING usual acetylene welding cart around, Earl Krier, Rock Island, Ill., adds third wheel at rear to take weight of gas cylinders while moving. With extra wheel, held by welded triangular plate and pair of braces, cart can be pushed with one hand. Photo, Hobart Arc Welding News

V-SCREED on front of finishing machine strikes off concrete on 2-ft. widening strip placed by Brinson Construction Co., Tampa, Fla., on U.S. 41 near Sulphur Springs, Fla. Concrete is delivered by transit mixers. One set of finisher wheels rides widening forms; other set, converted to wide tread, rides pavement. Portland Cement Ass'n. Photo

Tramways Serve Swiss Hydro Tunnels

Along dizzy slopes...

One of four sections of tramways serving tunnel driving of Handeck No. 2 hydro project in Swiss Alps clings to steep mountainside.

TO REACH otherwise inaccessible adits and portals of three sections of tunnel being driven as part of K. W. Handeck No. 2 hydro-electric project in the Swiss Alps, the contractors have built a series of four tramways totaling 6 mi. long. Radiating from a central loading and control station near existing Handeck No. 1 project, the tramways transport all men, materials and equipment for 6½ mi. of tunnel.

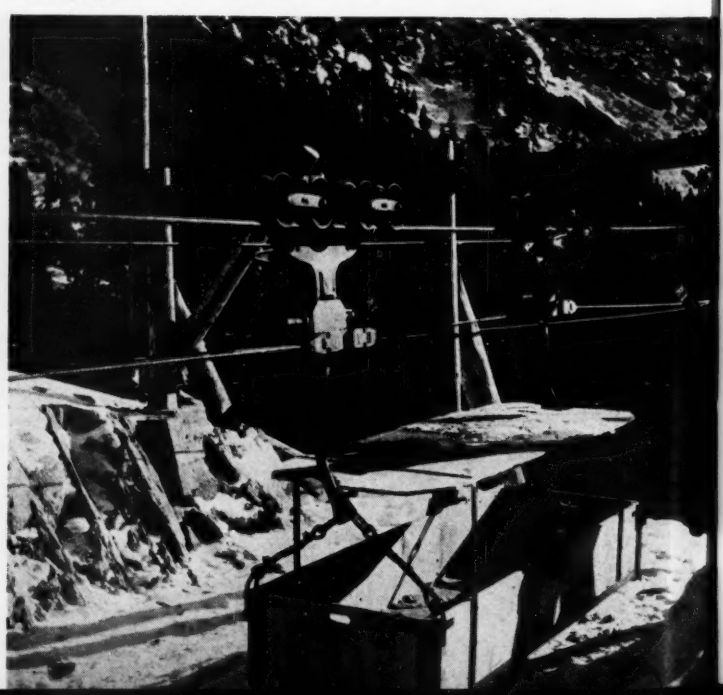
Besides the tunnels, features of Handeck No. 2 are a gravity section concrete dam 300 ft. high and 900 ft. long, requiring 350,000 cu. yd. of concrete, and an underground powerhouse being built in a chamber 52x200 ft. and 90 ft. high. Two 40,000-hp. units will be installed initially with provision for two more similar units, operating under a 1,400-ft. head. Well back of the

Across deep canyons...

Tramway towers (below) are high enough to let cars clear deep snow. In terrain like this tramways are only answer to transportation problems, especially in winter.

Cars roll along...

These cars (below) haul men, materials and equipment to portals and adits on three sections of 6½-mi. tunnel network for new Swiss project.



avalanche zone, the powerhouse is reached through a 450-ft. outlet and access tunnel.

The project is being built for Kraftwerke Oberhalsi, A. G. by the combined contracting firms of Locher & Co., and Ed. Zublin & Co., A. G., both of Zurich. Representatives in charge for the three firms are, respectively, Jakob E. Bachtold, chief engineer; Albert J. Luchinger, chief engineer, and Karl Albrocht, technical director.

The accompanying pictures show some of the construction features.

Underground powerhouse..

To get powerhouse out of avalanche zone it is being built underground at end of 450-ft. access tunnel. Flat-arch roof was excavated and concreted first, followed by removal of remaining rock by benching.

Reached by adit...

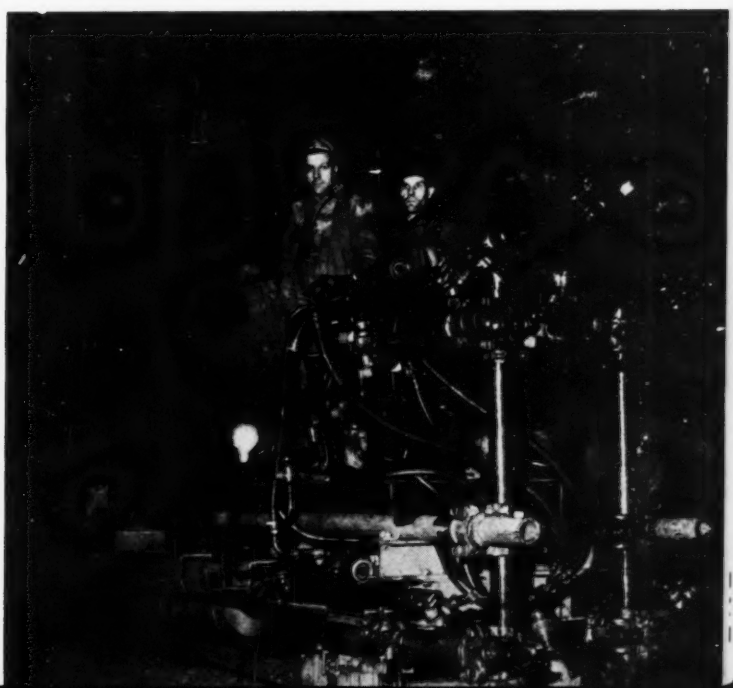
First entrance to underground powerhouse was by adit shown in upper right. Access tunnel 450 ft. long for power equipment, including four 40,000-hp. units, is being driven from both ends by top heading and bench method.

Avalanche persuader...

When contractors (below) wanted to strip snow from mountain slope to open up an adit, they fired Swiss army mortar shells against the slope to start snow-clearing avalanche. The scheme worked fine.

American equipment...

Adits and tunnels are being driven with modern equipment, (below) much of it from America. This drill carriage equipped with Ingersoll-Rand drifters, is an example.



5,000,000 Youngsters Need Our Help Now

THE bumper wartime crop of babies, about 5,000,000 larger than the population experts expected, is reaching school age.

At school these youngsters should find a good education awaiting them. That is their most cherished American birthright.

But unless something is done quickly, millions of these children will be cheated. They will crowd into classrooms already run on double shifts. They will move in with children who are now sitting two in a single seat. They will read germ-loaded books mangled by a generation of use by grimy hands.

I

So the continuing crisis in American education is given a new twist by unexpected pressure on school plant and equipment.

The U. S. birthrate has jumped by leaps and bounds. Instead of declining in the '40s, as the experts expected it would, the rate climbed from 17.9 per thousand in 1940 to 21.5 in 1943. It jumped to 25.9 in 1947, an increase of 45 percent since 1940. Result—by 1956 elementary school attendance in the United States is expected to jump from 18,200,000 to more than 23,400,000, an increase of about 5,200,000, or more than one-fourth.

The rush has already begun. It will pick up speed next fall.

Now, while this pressure has been building up, our public schools and their equipment have been running down—first through inevitable wartime neglect, then because inflation and material and labor shortages made it difficult to catch up.

If we are to give this bumper crop of youngsters the break they deserve—and reach the educational standards the nation needs—we must speedily do a major job of educational rehabilitation and expansion.

II

Some headway has been made in overcoming the teachers' salary crisis.

Teachers' salaries are improving. Pay problems were driving good teachers away from their posts in droves not long ago. But in the year since the 57th editorial in this series emphasized that crisis, the average teacher's annual salary has increased about $300—from $2250 to $2550.

True, increases vary enormously from state to state and from town to town. In a few states the average increase has been $500; in some less than $100. But, for the nation as a whole, last year's increase put teachers about even in the race with the cost of living. After taxes, their salaries have risen 68%, and the cost of living 67%, since 1939. In terms of pay increases, however, they are not nearly as well off as are industrial workers, whose average weekly wages after taxes have risen 108% since 1939. They are far behind farmers, whose net income is now four times what it was in 1939. And teachers had notoriously low salaries to start with.

A great deal more needs to be done in raising salary standards to put our school system on a firm footing. There are still about 100,000 teachers, nearly 12% of all public school teachers, who hold temporary or emergency credentials. They cannot meet

prevailing standards, and not very severe standards at that, for persons holding their posts.

The salary crisis, however, is easing.

III

But now comes the new crisis in school buildings and equipment.

We would have been hard put to get our schools back into shape after years of wartime neglect—even without a booming birthrate complicating the problem. Right now, 85% of all public school buildings need major remodeling to remove health and safety hazards.

And we aren't building enough new schools to keep up with current needs, to say nothing of catching up on those we were not able to build during the war years. School construction expenditures for 1948 are estimated at $375 million – which is less than what was spent in 1939. With building costs twice as high as they were in 1939, that means we aren't even holding our own—we are falling further behind.

And now comes the rush of war babies.

IV

We must spend at least $11 billion on new schools and equipment in the next decade.

Public and elementary schools must have $6.6 billion. Equally important, another $4.4 billion must be invested in buildings and equipment in our private schools, colleges and universities if they are to meet the demands which will be made upon them. The private school and the privately endowed university are doing their full share and doing it well. The need for them is increasing.

These figures cover only rockbottom needs for educational plant and equipment. But statistics are a very restricted recorder of this crisis.

You can see it better, I'm sure, in schools not very far from your home. There are schools with leaking roofs and outdoor toilets in our greatest cities. There are schools where students still use histories and geographies copyrighted before 1920—books with no mention of World War I, the depression of the 1930's, the Russian Revolution or the rise of the dictators. There are countless schools where modern methods of visual education are completely unknown.

All of these conditions promise to get worse – promptly – as that scheduled 5 million increase in the school population gets rolling.

V

The Metropolitan Life Insurance Company does not indulge in lurid prose. It says after painstaking study of the educational crisis that:

"Unless definite measures are taken immediately . . . large numbers of American boys and girls will be deprived of an adequate education."

Currently we are deeply concerned about our military defenses. We are taking, and I think rightly, emergency measures to strengthen them. But we must regard our schools as a part of our national defense as vital as are our armed forces. This is particularly true in these times of fifth columns and ideological warfare.

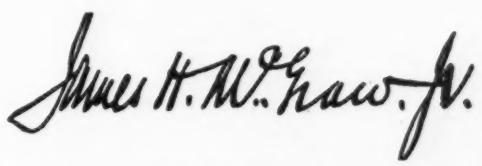
If we are wise, we will raise our sights. We will give the continuing crisis in education the same urgent attention being given the more obvious but no more real crisis in national defense.

Go to the school house in your neighborhood and discover what needs to be done to provide for the rising tide of young Americans. Ask your school board and your school administrators and teachers how you can help them.

That is good citizenship.

That is patriotism.

That is our duty to the oncoming generation.



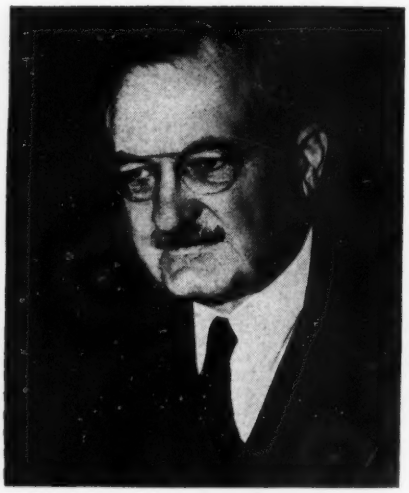
President, McGraw-Hill Publishing Company, Inc.

THIS IS THE 68TH OF THE SERIES

Present and Accounted For...A PAGE OF PERSONALITIES

HON. JULIAN P. ALEXANDER, Associate Justice of State Supreme Court, swears in new Mississippi Highway Commission. Left to right: JUSTICE ALEXANDER, JOHN D. SMITH, commissioner for southern district; S. T. ROEBUCK, commissioner for central district; and ROY C. ADAMS, commissioner for northern district. Mr. Roebuck is chairman of commission.

ACTIVATION of 433rd Engineer Construction Battalion, sponsored by Detroit Chapter, Associated General Contractors of America, becomes official with signing of agreement by Col. A. H. Cummings, Michigan Organized Reserve Corps. Witnessing Colonel's signature are Capt. M. H. Gates, Lt. Col. Cecil F. Clark, and Col. A. Riani, Detroit District Engineers. Lt. Col. Clark, now with O. W. Burke Co., Detroit, and former commander of 146th Combat Engineer Battalion in Europe, will command new outfit, to be manned by employees of Detroit contractors.
Detroit Free Press photo



FROM CAMPUS TO KILOWATTS goes Dr. Harry A. Curtis, Dean of Engineering, University of Missouri, appointed member of Tennessee Valley Authority Board by President Truman. He replaces Dr. Harcourt A. Morgan, retiring at age of 80 after serving on Board for 15 years. Press Ass'n. photo

ALEX VAN PRAAG, JR., consulting engineer of Decatur, Ill., has been elected president of National Society of Professional Engineers.

DONALD F. CARPENTER (below), vice-president, Remington Arms Co., has been named deputy on atomic energy matters to Secretary of Defense James Forrestal. Mr. Carpenter will be new chairman of commission's military liaison committee.
Press Ass'n. photo

←
BERNARD A. SAVAGE (left), director of housing, Celotex Corp., and RAYMOND L. TUCKER, president, Steel-Bilt Construction Co., Pittsburgh, look over plans for an industrial building during convention of National Association of Home Builders in Chicago. Savage formerly was commissioner of standards and appeals, New York City. His present activities include posts as executive director and member of board of governors, Building Officials Foundation and member of City of Chicago committee for revision of building code.

NORTH • EAST • SOUTH • WEST • • IT'S SCHRAMM!

the Air Compressor You Like to Operate

For these reasons—compactness, lightweight, ease of starting—users of Schramm Air Compressors have said they *like* to operate them.

Other features, however, enter into the usefulness of Schramm. There's 100% water cooled feature, allowing you to operate Schramm perfectly both summer and winter; mechanical intake valve, forced feed lubrication, to mention a few.

Schramm features make them the Air Compressors ideal for your many jobs . . . and the reason they're specified North, East, South and West. Write today for full data.

Compact

. . . no waste space, compressor and engine coupled into a single, rigid, permanently aligned unit . . . balanced to reduce wear and increase efficiency!

Lightweight

. . . Portables designed for quick handling to and from the job, stationary units vibrationless.

Easy to start

. . . Just push the built-in- electric starter, and the Compressor starts . . . to give you a continuous amount of air.

TOOLS *for the* JOB

Schramm Inc. also has a complete line of Pneumatic Tools to offer and recommend for operation by their Compressors.

These include Rock Drills, Paving Breakers, Trench Diggers, Clay Spades, Backfill Tampers, Tie Tampers, Sheeting Drivers, Demolition Tools, Chain and Circular Saws.

Write for bulletins and prices.

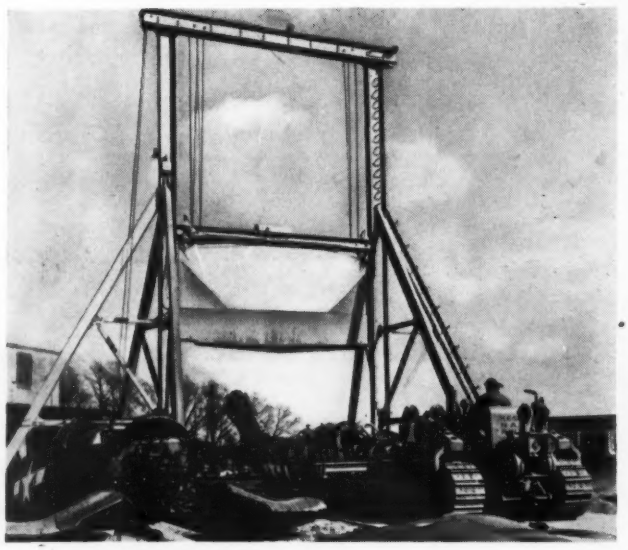
BE SURE TO VISIT THE SCHRAMM DISPLAY AT BOOTH 3201-3212 THE AMERICAN ROAD BUILDERS' SHOW JULY 16th to 24th, CHICAGO, ILL.

SCHRAMM INC.

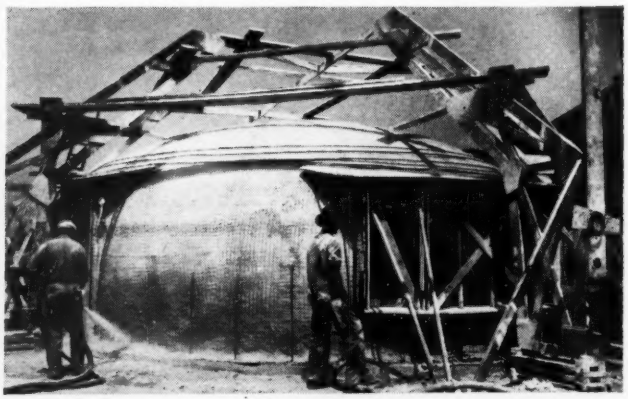
THE COMPRESSOR PEOPLE • WEST CHESTER • PENNSYLVANIA

JOB oddities

WISH IT WAS YOURS? Two-story house gets complete paint job in 5 min. 31 sec. in "Paint Blitz" marking opening of municipal paint-up, clean-up drive in Memphis, Tenn. Press Ass'n. photo



MODERN GUILLOTINE salvages aluminum from 16 obsolete planes a day at Naval Air Station, Norfolk, Va. Bulldozer positions plane as 6,100-lb., electrically-driven blade drops 26 ft. to cut fuselage. Press Ass'n. photo



BALLOON FORMS made of 8-oz. rubber coated nylon and gunited with concrete are used near Mexico City to produce domes in various combinations and unusual designs for homes, schools and utility buildings. Forms are made by Goodyear Tire & Rubber Co. and buildings are designed by Wallace Neff, Los Angeles architect for Airform Construction Co.

300 PERSONS—ONE ELEPHANT is "heaped capacity" of new circus seating platform developed by Ringling Brothers-Barnum and Bailey. Folding seats are bolted to segmented steel floor which is mounted on truck-trailer for main support when in use, supplemented by steel posts at sides. For travel, platform collapses and folds around trailer body. Press Ass'n. photo

TROPHY-WINNING YACHT, owned by band-leader Guy Lombardo, is loaded aboard truck by Lorain Moto-Crane in first lap of trip homeward to Long Island, N. Y. W. T. Price, contractor of Miami, Fla., owns crane.

DURAPLASTIC

IS EXCELLENT FOR FLOORS

Concrete made with Atlas Duraplastic air-entraining cement is easier to place and finish because it is more plastic and workable . . . more cohesive and more uniform.

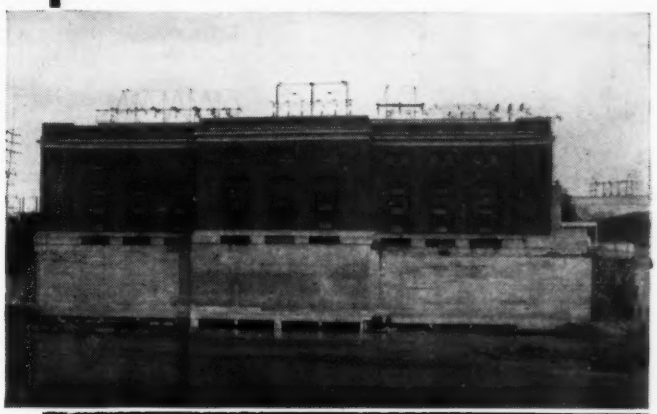
IS HIGHLY ADAPTABLE FOR STRUCTURAL WORK

For example, this building has a fine stucco finish—made with Duraplastic cement. Stucco, slip-form, gunite, paving, structural or mass concrete—Duraplastic provides the proper amount of entrained air needed for satisfactory field performance.

AND IS MORE DURABLE under tough conditions

Duraplastic concrete provides added protection against exposure and the effects of freezing and thawing weather. It is more durable, yet no additional materials are needed—merely the same good workmanship regularly employed. Duraplastic costs no more than regular cement. It complies with ASTM and Federal specifications.

Write for further information. Universal Atlas Cement Company (United States Steel Corporation Subsidiary), Chrysler Building, New York 17, N. Y.



OFFICES: Albany, Birmingham, Boston, Chicago, Cleveland, Dayton, Des Moines, Duluth, Kansas City, Minneapolis, New York, Philadelphia, Pittsburgh, St. Louis, Waco.

CM-D-63

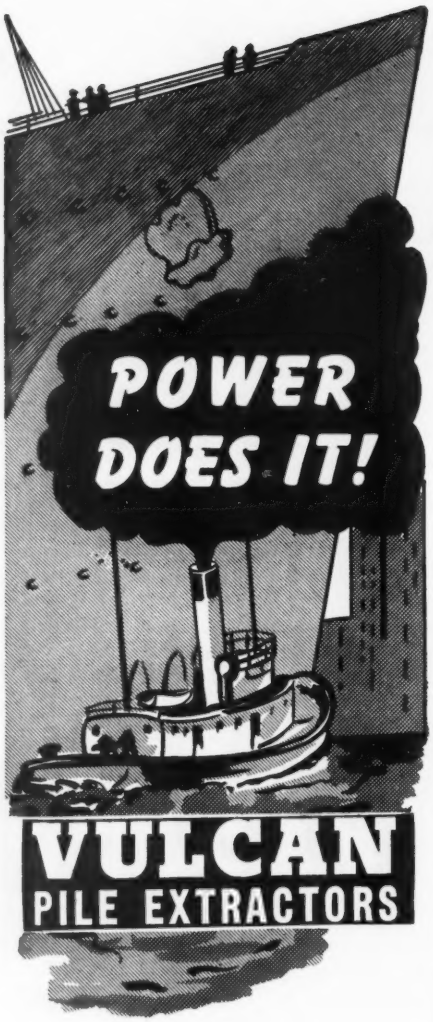
ATLAS DURAPLASTIC

TRADE MARK REG. U. A. C. CO.

AIR-ENTRAINING PORTLAND CEMENT

MAKES BETTER CONCRETE AT NO EXTRA COST

"THE THEATRE GUILD ON THE AIR"—*Sponsored by U. S. Steel Subsidiaries—Sunday Evenings—September to June—ABC Network*



● Every minute on the job, the efficient, dependable Vulcan Pile Extractor produces power that pulls piles rapidly and economically, even under the most adverse conditions. Its effectiveness and durability have been proved through two decades of heavy duty service.

The Vulcan Pile Extractor is manufactured in three sizes for all extracting purposes—No. 200 for pulling less difficult piles, No. 400 for pulling small wood piles and commonly used lengths and sizes of steel sheet piles driven under normal conditions, and No. 800 for extracting the heaviest, longest and most difficult steel piles and all size or length of wood, concrete, H-beam or pipe piles.

Get complete details on the time-saving Vulcan Pile Extractor. Write today.

VULCAN IRON WORKS
Since 1852
331 North Bell Avenue
Chicago 12 ---Illinois

CONSTRUCTION EQUIPMENT NEWS

JUNE 1948 REVIEW of Construction Machinery and Materials

(For further information about these products, use coupon below)

301

PICK-UP STREET SWEEPER—Operator's comfort, visibility and easy access to all controls are special features of the "Gutter-Snipe" street sweeper. Seat is mounted on a coil spring with hydraulic shock absorber, spring cushion and back. Without bending, operator has direct view of curb line. Gutter broom, pickup broom and dirt hopper have individual hydraulic controls. To insure proper maintenance this model is designed to permit access to all operating parts by raising a hinged panel on left side of sweeper, and whole engine is exposed by raising hinged engine hood. Sweeper thoroughly cleans a path 6 ft. wide without streaking.—**Municipal Supply Co., South Bend 23, Ind.**

302

LOADER—New type small front-end loader is mounted on own 3-wheel tractor, air-cooled gas engine powered, hydraulic controlled. Load is concentrated on two front wheels, where traction power is applied; steering is through single rear wheel. Hoist will lift and dump 6-cu. ft. bucket (1,000-lb. capacity) up to 6 ft. high. Transmission permits four forward speeds, one reverse. Ideal for handling and loading materials and for charging concrete mixers, as shown here on George Sollitt Construction Co. building job in Chicago. — **Arrow Contractors Equipment Co., 2020 Walnut St., Chicago 12, Ill.**

If you want more information on new products or publications, mark identifying number (given at top of item) on the coupon below and mail. No cost or obligation to you.

New Products Department,
Construction Methods
330 West 42nd St., New York 18, N. Y.

Send me further information on items numbered

____ ____ ____ ____
____ ____ ____ ____
____ ____ ____ ____
____ ____ ____ ____

Name .....
(Please print)
Title .....
Company .....
Address .....
(June) .....

MODEL 15-M
3-inch

Still the most
SIMPLE PUMP
No Ports
No Valves
No Clogging

ALL SIZES
7M - 10M - 15M
20M - 30M - 40M
90M - 125M

The New GORMAN-RUPP *Blue Pump*

CHALLENGES ANY CONTRACTOR'S PUMP
Size for Size, to
1. Prime as Quick
2. Prime as High
3. Pump More Dirty Water

Gorman-Rupp Self-Priming Centrifugal Pumps have long led the industry in performance and dependability. Now, Gorman-Rupp goes further ahead with a NEW LINE OF CONTRACTOR'S PUMPS. Streamlined inside, where streamlining counts, these new pumps are the Quickest Priming, Fastest Pumping, Never-Quit Pumps available. No other pump can match their performance.

TAKE QUICK PRIMING:

The New Model 15M (3") primes at 25 ft. suction lift in 61 seconds.

The New Model 90M (6") primes at 25 ft. suction in 44 seconds.

SEE THE NEW COMPLETE LINE of GORMAN-RUPP PUMPS at the ROAD SHOW

The Gorman-Rupp Guarantee

Our distributors are authorized to put a Gorman-Rupp Contractor's Pump on any pumping job, anytime, anywhere, alongside any other make pump, size for size. The Gorman-Rupp pump is guaranteed to pump more dirty water, more hours, using less gasoline, to prime quicker and at higher suction lifts than any other self-priming pump. If it isn't the best all around pump our distributor will accept the return of the Gorman-Rupp pump and pay the user any installation expense incurred.

* Sea level.

THE GORMAN-RUPP COMPANY
MANSFIELD • OHIO

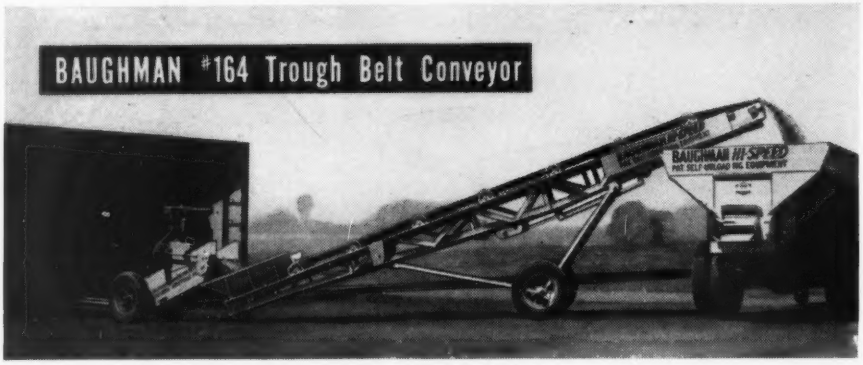
THIS TEAM HANDLES

60 TONS PER HOUR!

Baughman

New HI-SPEED Conveyor Combination

Moves Material from Car to Truck in ONE OPERATION!



Baughman HI-SPEED loading and unloading action slashes time and handling costs to rock bottom!

Here's the "production-wise" answer to handling loose, free-flowing abrasive or non-abrasive material such as sand, gravel, crushed rock, cement, coal, etc., quickly, efficiently, economically.

THESE EXCLUSIVE

BAUGHMAN FEATURES

SAVE YOU TIME AND MONEY!

- **MAXIMUM FLEXIBILITY!** One man can easily handle. Lifting mechanism operates freely on Timken grease-sealed bearings. Scissor type action supports conveyor at any angle.
- **MOBILITY...PORTABILITY!** Wheels turn on Timken bearings sealed against dirt and water. Equipped with 600 x 16 first grade automobile tires or 28" steel wheels.
- **LIGHTER AND STRONGER!** Featherweight high tensile alloy steel gives 17% more strength...30% less weight...five times greater rust and abrasive resistance.
- **NO SLIPPAGE...POSITIVE TRACTION!** Flexible line shaft drive transmits power direct to head pulley through sealed aluminum gear reduction case.
- **NO FLOPPING CHAINS!** To waste power...require adjustment...cause expensive repairs.

WRITE TODAY FOR PRICES AND COMPLETE INFORMATION

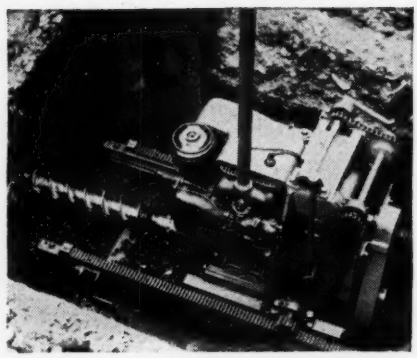
BAUGHMAN

If It's HI-SPEED ...It's BAUGHMAN!

Baughman Manufacturing Co., Inc.

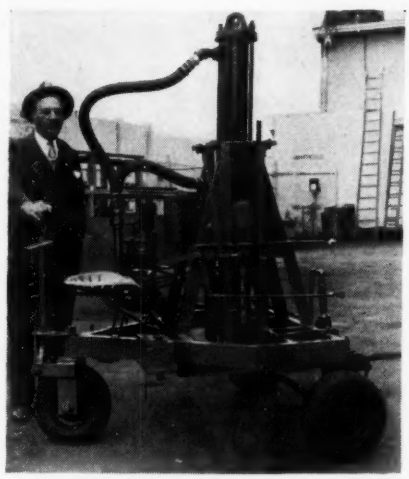
160 ARCH STREET • JERSEYVILLE, ILLINOIS

303

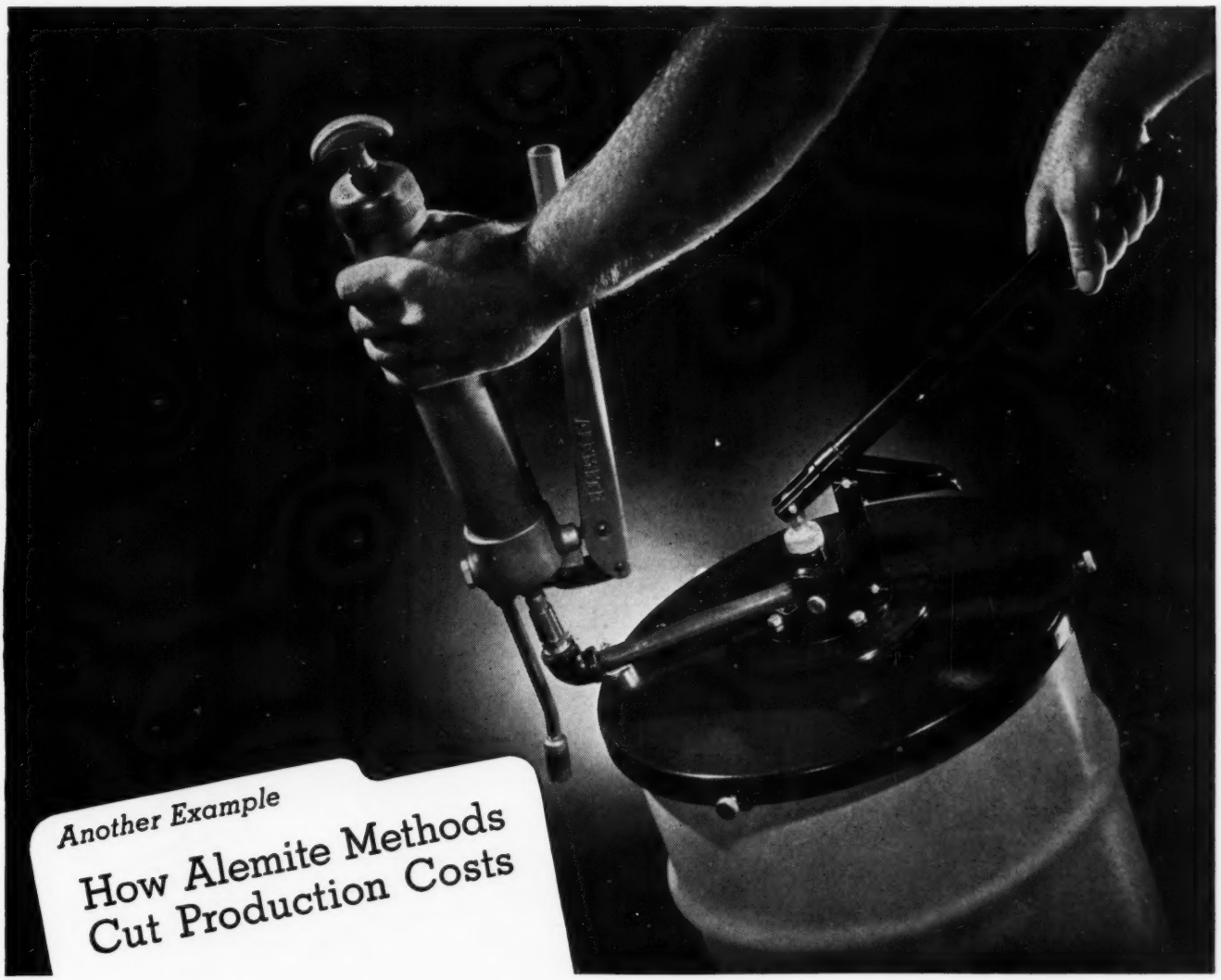


UNDER PAVEMENT DRILLER—This new utility drill for drilling under pavements replaces, with a number of improvements, the flexible shaft drill out of production during the war. It is equipped with a 12-hp. Wisconsin motor and will drill a 4¼-in. hole to a distance of 50 ft. or more. Accessories include the Parmanco direction-control lead point and Parmanco augers with interrupted flights and secondary cutters which insure a straight clean hold.—**Paris Mfg. Co., Paris, Ill.**

304



PAVING BREAKER—Designed to break concrete and other types of pavement up to 10 in. thick and tamp backfill. Mounted on a tricycle running gear and driven by air motor geared to wheels. Used with 105-c.f.m. air compressor, breaker delivers 55-60 blows per min. with 5,000 ft.-lb. of energy available at striking head. Machine is 4 ft. 8 in. long, 4½ ft. wide and 5 ft. high. Mounted on all-welded frame, it has 3-in. piston rod, 5-in. cylinder bore and 125-lb. hammer. Normal stroke is 24 in. Machine weighs 1,450 lb. and will reach 30 in. below ground surface. Seven types of paving breaker tools fit this machine, called the "Mighty Midget." It is adapted for making quick openings in pavement for public utility facilities.—**R. P. B. Corp., 2751 E. 11th St., Los Angeles, Calif.**



Saves 3¾ Hours Per 100 lbs. of Grease!

Your Lubrication Methods May Be More Antiquated Than You Suspect

A simple thing like using the hand and paddle method to fill a grease gun boosts maintenance costs . . . and that means lower productive capacity per dollar per machine. The Alemite Representative is a *specialist* in modern methods of handling and applying lubricants. A five minute conference with him may open your eyes to new cost-cutting ideas. So, contact your Alemite jobber, or write Alemite, 1840 Diversey Parkway, Chicago 14, Illinois.

Increases Productive Time of Machines by Fast, Clean, Mechanized Handling and Application of Lubricants

You use hand guns in your plant. Then listen to this. Alemite's new method of loading a hand gun can save up to 3¾ manhours for every 100 lbs. of grease you use! Three and three-quarters hours you can apply to other much needed preventive maintenance work.

A minor operation yes, but it's such savings that help to augment your drive to cut production costs. In addition, this Alemite Method saves grease and eliminates mess . . . keeps dirt and moisture out of lubricants.

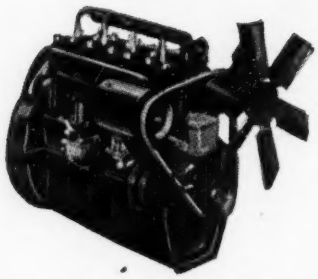
It's just one of many ways that Alemite Methods simplify lubrication procedures and add more productive time to machines. The Alemite Representative can show you case after case where time study analysis proves that modern Alemite Methods eliminate costly, time-consuming handling of oils and greases . . . slash time-outs for lubrication . . . completely mechanize barrel-to-bearing lubrication. He can show you how to lubricate as many as 300 bearings from *one* safe, central point while the machine keeps on producing! Get the complete facts, today!

ALEMITE

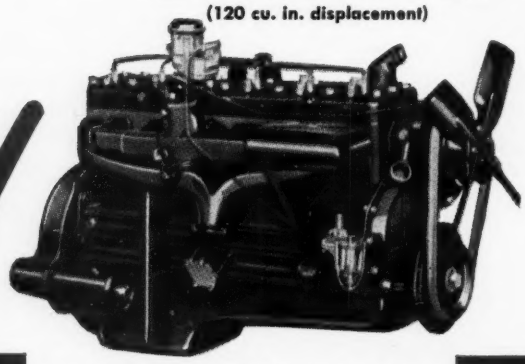
Another Product of STEWART WARNER

MODERN LUBRICATION METHODS THAT CUT PRODUCTION COSTS

Here's the New FORD Power-Family



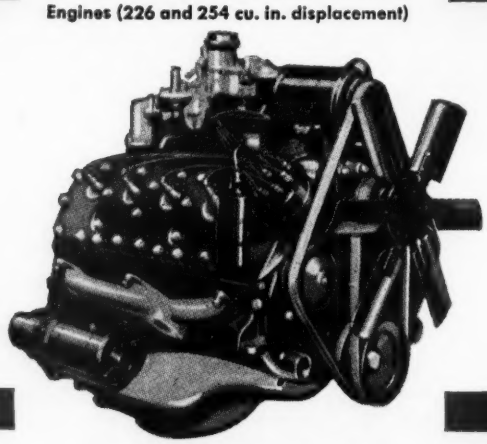
Ford 120 Four Cylinder Industrial Engine
(120 cu. in. displacement)



Ford 226 and 254 Six Cylinder Industrial Engines (226 and 254 cu. in. displacement)

1 "FOUR" . . . 2 "SIXES" . . . 2 "EIGHTS"

Here they are . . . five great, brand-new Industrial Engines built by Ford! Look 'em over—every one the product of Ford experience . . . every one with famous Ford reliability built in . . . every one complete and ready to run! For *new* power, for *right* power, use Ford Industrial Engines, completely new!



Ford 239 V-8 Industrial Engine
(239 cu. in. displacement)

When It's FORD POWER . . . it's right 3 ways!

RIGHT POWER—A full power range, from the maker that knows power best . . . from Ford!

RIGHT FEATURES—Ford Industrial Engines incorporate the latest advancements of Ford's progressive engineering. You're never outdated when you pick Ford power.

RIGHT SERVICE—Ford Dealers provide complete parts and service facilities around the world. They keep Ford power on the job, save you time and money!

Ford 337 V-8 Industrial Engine
(337 cu. in. displacement)

FORD MOTOR COMPANY

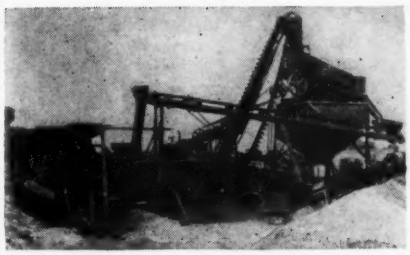
INDUSTRIAL AND MARINE ENGINE SALES DEPARTMENT

3506 Schaefer Road • Dearborn, Michigan

Listen to the Ford Theater, Sunday afternoons, NBC Network. See your newspaper for time and station.

YOUR JOB IS WELL-POWERED WHEN IT'S FORD-POWERED

305

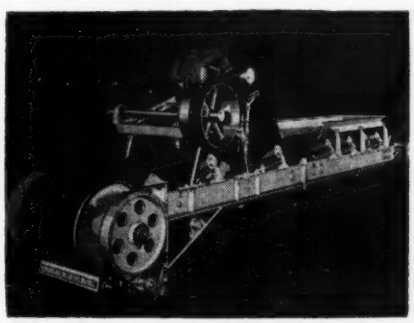


CRUSHING AND SCREENING PLANT — Semi - portable duplex plant has jaw crusher and roll crusher together with folding bucket elevator and power unit, all mounted on structural steel chasis with steel wheels although pneumatic tires are optional. Additional units consist of three-deck 3x10-ft. vibrating screen mounted atop a 20-cu. yd. three-compartment steel storage bin and a return conveyor from screen to roll crusher. Plant is rated at normal capacity of 40 to 50 tons per hr. of three sizes of material. Hopper-fed primary crusher will take rock up to 12 in. — **Pioneer Engineering Works, Inc., Minneapolis 3, Minn.**

306

SYNTHETIC PAINT—New heavy-duty, long-wearing synthetc paint useful in protecting concrete surfaces with an abrasion-resisting coating that does not check, crack or dust should be of interest in the building and construction field. New paint is being marketed under the trade name of "Oncrete for Concrete."—**Lowebco, Inc., Chicago, Ill.**

307



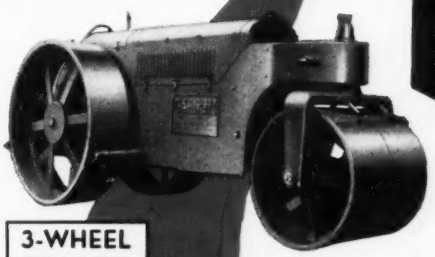
CHANNEL FRAME CONVEYOR—New "Marco" standardized channel frame conveyor will make for better bulk materials handling. Basic units can be interchanged on varied installations. Terminals and intermediate sections are prefabricated and factory - assembled. Standardization assures proper alignment, easy erection, and dependable operation on the job. Manufacturer offers complete line of conveyor assemblies which may be used in full or in part for construction of complete conveyors, or as replacement on existing units.—**E. F. Marsh Engineering Co., 4324 West Clayton Ave., St. Louis, Mo.**

GALION

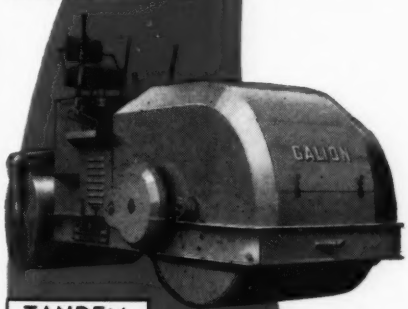
Adds a New TANDEM

A COMPLETE LINE

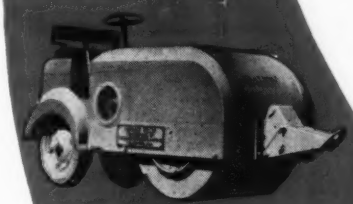
3-5 TON
A SMALL ROLLER WITH A LARGE APPLICATION



3-WHEEL ROLLERS



TANDEM ROLLERS



PORTABLE ROLLERS

This addition to the Galion line of Rollers will prove to be one of your most useful and profitable pieces of equipment.

Write for complete information.

THE GALION IRON WORKS & MFG. CO.
General and Export Offices
GALION, OHIO

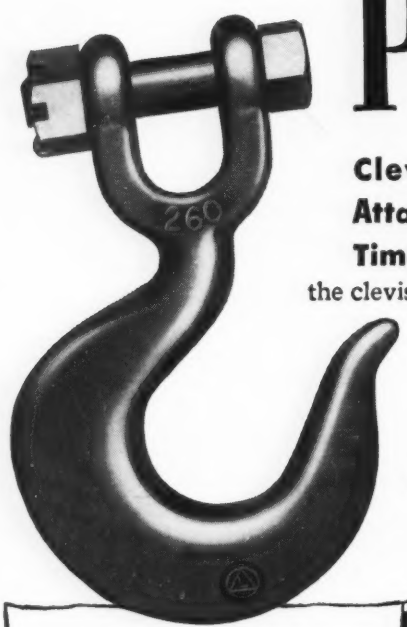
BETTER ROADS FOR A BETTER WORLD · 45th Annual Convention and Road Show · SOLDIER FIELD CHICAGO · JULY 16-24, 1948

SPACES 2206, 2405, 2408 and 2607 NORTH CONCOURSE

GALION 1907 - 1948

GRADERS · ROLLERS

Here are Hooks that hoist your Profits!



Clevis Hoist Hook Is Quickly Attached . . . Changed . . . Saves Time and Labor. Slip the bolt through the clevis, spin the nut, spread the cotter and this heat-treated hook's ready and safe for your toughest jobs. No welding, no spelter, no connecting fittings required. Send for Laughlin's famous data book of industrial fittings . . . Catalog No. 140.

THE THOMAS LAUGHLIN CO.,
DEPT. 1, PORTLAND 6, MAINE.

Laughlin Safety Hook . . . "The Latch Locks The Load" . . . adds a big safety factor to every lift. Sturdy latch, stainless steel spring. For every industrial application.

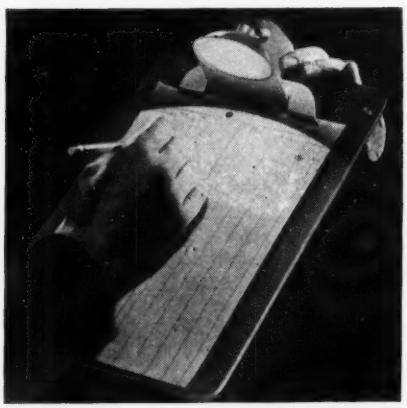
Laughlin Replacement Swivel Hook Assembly with Safety Latch. Bolts on and off . . . no machining . . . no threading. For hoists, cranes, lashing operations. One-ton and half-ton sizes.

LAUGHLIN

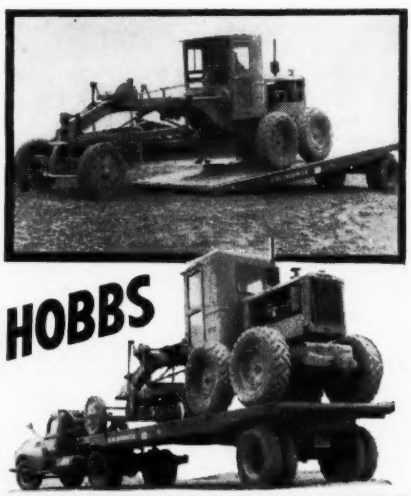
THE MOST COMPLETE LINE OF DROP-FORGED WIRE ROPE AND CHAIN FITTINGS

(For more information on new products, use coupon, p. 120.)

308



ILLUMINATED TALLY BOARD—"Tally-Lite" throws clear light on tally sheets for speeding checking and entering where there is little or no illumination. Sturdily built for hard usage, board has heavy filament 3-v. bulb and uses three standard flashlight cells, assuring long battery life and easy replacement. Entire unit with batteries weighs only 24 oz. Designed for anyone who must take records or inventories in bad light.—**Clyne Mfg. Co., 2619 Colerain Ave., Cincinnati 14, Ohio.**



Self-Loading Floats

GET THE JOB DONE with LESS Labor, Equipment, Time!

Loading and unloading heavy machinery is made easy with the HOBBS Self-Loading Float. Can be lowered into easy grade ramp position with truck winch—loading and unloading then simple as illustrated by top photo (or by using truck winch line with truck backed up to rear of float.) Single and tandem axle models.

WRITE FOR FOLDER "SLF"

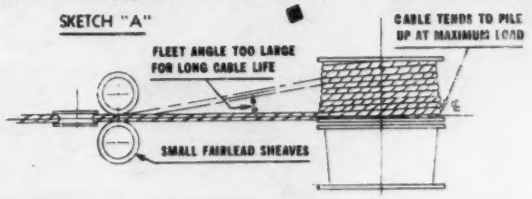
HOBBS MANUFACTURING CO.

Dept. M 609 North Main St. Fort Worth, Texas

Factory Sales and Service Also in

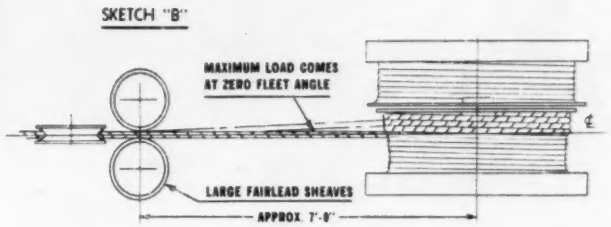
Houston San Antonio Dallas Lubbock

Look at a LIMA Dragline from these angles



1. Proper fleet angle is an important factor in cable life: the smaller the angle, the less the wear on cable by flanges of the sheave. Sketch "A" at right, shows a common method of cable reeving where large fleet angle and piling at maximum load cause excessive cable wear. Sketch "B" shows the LIMA method, achieving small fleet-angle—with *zero angle at maximum load,* by proper placement of drum with relation to fairlead and large diameter drums with short traverse. Cable wear is further protected by large, deep throated sheaves and grooved drums.

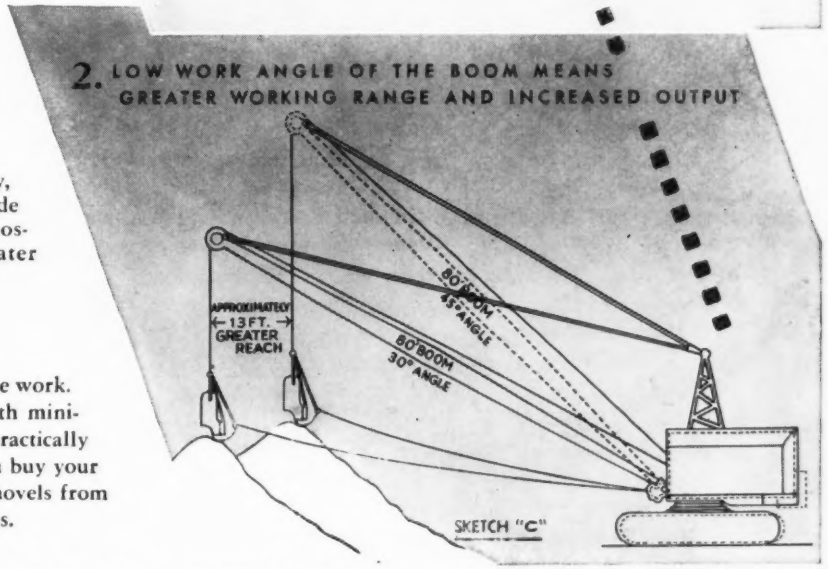
1. SMALL FLEET ANGLE OF THE FAIRLEAD CABLE MEANS LONGER LIFE AND LESS DOWN TIME



2. Sketch "C" illustrates how a well balanced LIMA dragline with 80 foot boom, working at 30° angle, achieves 13 feet greater reach than a light weight machine with same length boom, but which cannot go lower than 45° without tipping.

LIMA draglines have low center of gravity, proper weight distribution and long wide crawlers—all contributing to lower possible work angle of boom and greater working ranges.

2. LOW WORK ANGLE OF THE BOOM MEANS GREATER WORKING RANGE AND INCREASED OUTPUT



LIMA draglines are designed and built for dragline work. Every part is engineered for greatest output with minimum maintenance. Sizes and capacities for practically every requirement. Get all the facts before you buy your next dragline . . . LIMA also makes power shovels from ¾ to 6 yards and cranes from 13 to 100 tons.

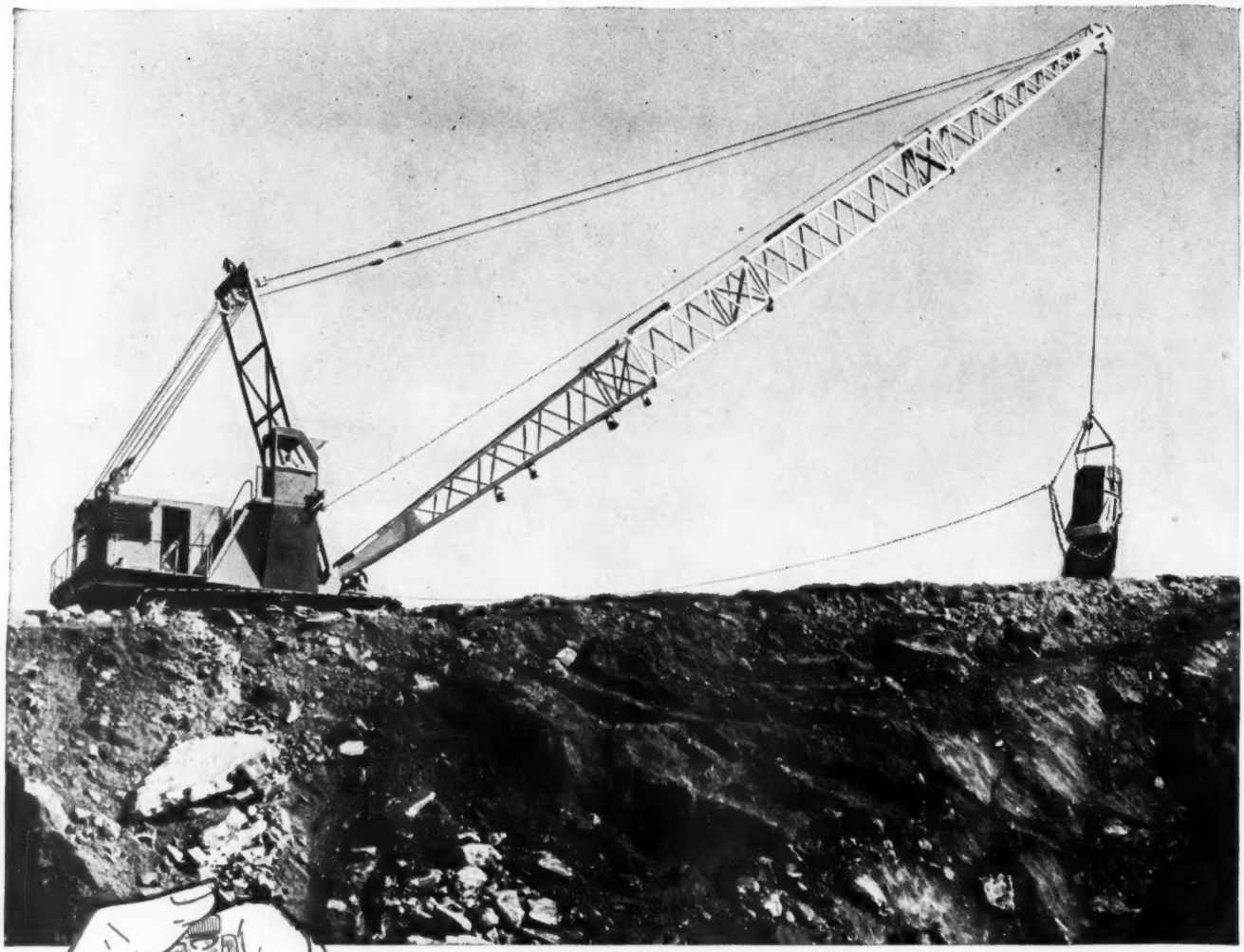
SEE US AT THE ROAD SHOW

Lima Shovel and Crane Division

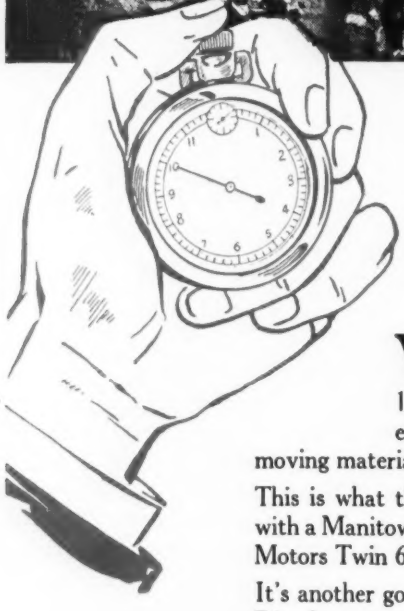
LIMA, OHIO

OTHER DIVISIONS: *Lima Locomotive Works Division; Niles Tool Works Co.; Hooven, Owens, Rentschler Co.*

LIMA HAMILTON CORPORATION



Manitowoc crane and dragline owned by the Coal Rain Coal Co., Junedale, Penna., and powered with a General Motors Series 71 "Twin" Diesel engine.



A pass every 50 seconds

WHEN you drag a four-yard bucket from the end of a 140-foot boom and make a pass every 50 seconds, you're really moving material.

This is what the Coal Rain Coal Co. is doing with a Manitowoc crane powered with a General Motors Twin 6 Diesel engine.

It's another good example of what GM 2-cycle Diesel power can do. With power at every down-stroke, pick-up is fast, response is rapid, and there's unusual power for a Diesel so compact, so reasonable in size and weight.

GM "71" Diesels are setting performance records in all kinds of equipment. They step up production, cut down maintenance and lower fuel costs.

Isn't this the kind of power you want? It's certainly well worth looking into. So write today and let us give you full particulars.

DETROIT DIESEL ENGINE DIVISION

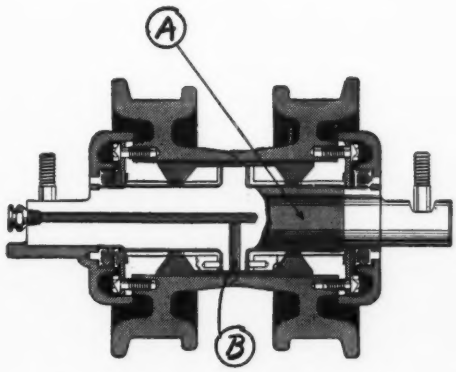
SINGLE ENGINES.. *Up to 200 H.P.* **DETROIT 28, MICHIGAN** MULTIPLE UNITS.. *Up to 800 H.P.*

GENERAL MOTORS

GM
GENERAL MOTORS
DIESEL POWER

DIESEL BRAWN WITHOUT THE BULK

CASE 1024--MAINTAINING LUBRICATING FILM ON TRACTOR TRACK-ROLLER BEARINGS.



CATERPILLAR TRACK ROLLER BEARING

When track-roller bearings in a Caterpillar doing heavy-duty dirt moving were lubricated regularly with RPM Tractor Roller Lubricant, their service lives were noticeably extended. Efficient in all climates. To meet various conditions, it comes in three grades: Light, Medium and Heavy.

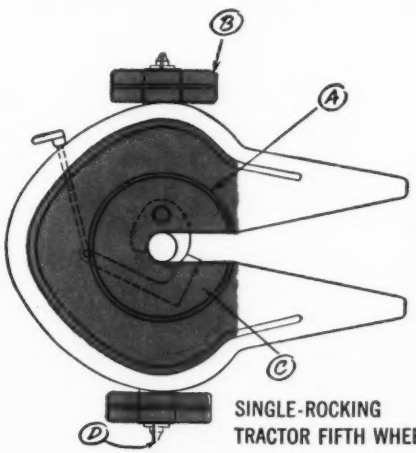
A. Contains a highly effective chemical anti-wear agent.

B. Has new stringiness agent--resists extreme pressure and constantly changing shock loads, controls flow of lubricant through bearings and keeps film on bearing surfaces.

RPM Tractor Roller Lubricant is resistant to water and helps seals keep out grit and dust.

A special kind of this outstanding product, RPM Tractor Roller Lubricant A.C. Type is made for Allis-Chalmers tractors.

CASE 1028--MAINTAINING LUBRICATING FILM ON CHASSIS BEARINGS UNDER EXTREME PRESSURES.



SINGLE-ROCKING TRACTOR FIFTH WHEEL

In the severest truck and bus service RPM Chassis Grease TB stayed on bearings longer than usual period between grease jobs. Improved product made specially for heavy-duty service. Has distinctive gray color. Comes in three grades: Light, Medium, Heavy.

A. Contains metallic anti-wear ingredient - resists wear and prolongs bearing life.

B. Cushions bearings against shock loads ... improved stringiness additive keeps film on surfaces - provides high adhesion and cohesion properties.

C. Heavy oil stock assures tough lubricant film - minimizes galling on large bearing surfaces.

D. Has excellent pumpability in cold weather - Light grade pumps freely in temperatures down to minus 10°F.

RPM Chassis Grease TB is waterproofed, keeps protective collar at outside edge of shackle bearings.

For additional information and the name of your nearest Distributor, write

STANDARD OIL COMPANY OF CALIFORNIA

225 Bush Street, San Francisco 20, California

The California Oil Company
30 Rockefeller Plaza, New York 20, N.Y.

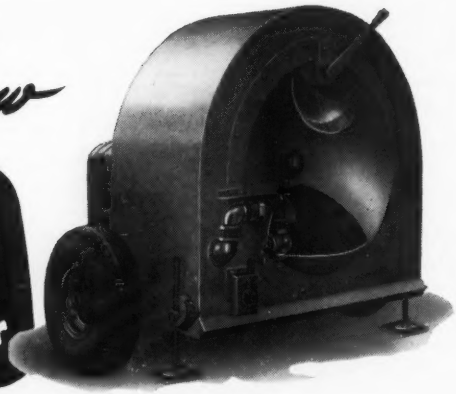
The California Company
17th and Stout Streets, Denver 1, Colo.

Standard Oil Company of Texas
El Paso, Texas

RPM CALOL

Trademarks Reg. U. S. Pat. Office

See me at the Road Show



the FOOTE *Kinetic* mixer

Here will be a good chance to look me over—the first really small asphalt plant for handling your patching jobs. You can find out for yourself that even though the *Foote Kinetic Mixer* is small I am well built, amply powered and fully able to deliver 3 cu. ft. of asphalt mix in 30 seconds.

Here is a chance to have all your questions answered and learn how you can handle those jobs like driveways, tennis courts, shop floors and patching, profitably.

See me at the Road Show July 16-24, Soldier Field, Chicago, and in the meantime ask for Bulletin K-100.

THE FOOTE CO., INC. • **1910 State Street** **Nunda, New York**

FOOTE

BOOTH 3106 SOUTH CONCOURSE

MULTIFOOTE CONCRETE PAVERS
ADNUN BLACK TOP PAVERS
Kinetic ASPHALT MIXERS

See Page No. 47

ETNYRE

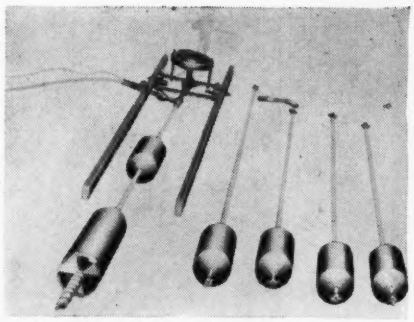
"Black-Topper"

BITUMINOUS DISTRIBUTORS

ACCURATE...DEPENDABLE...ECONOMICAL In new road construction or in making those much needed road repairs you'll find an Etnyre "Black-Topper" accurate in distribution, dependable in performance, low-cost in operation. See your Etnyre dealer or write us today for complete details.

E. D. ETNYRE & CO., Oregon, Illinois

309

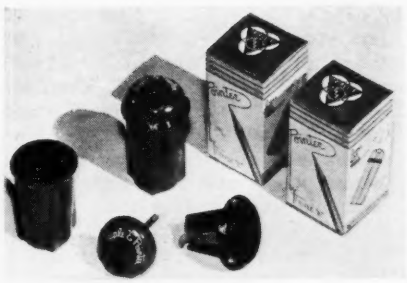


LATERAL EARTH DRILL—Accurate boring alignment for holes up to 100 ft. in length is claimed for the Detrick Lateral Earth Drill, a rig whose use eliminates open trench excavation for laying short runs of pipe. Device consists of a track frame, a power transfer gear box, hollow sectional torque rods with 8-in. guide cylinders and a driller head. Gear box takes power from an electric drill or from a hand crank and translates the power into drilling torque and laterial motion. This drill assembly also has a connection which permits the flow of water through the torque rods to the drilling head. Drilling head consists of a 2-in. earth auger, an 8-in. three-vane post-hole type digger and an 8-in. guide cylinder. In operation, track-frame is anchored astride the pipe centerline and parallel to the line. Power assembly is fixed on frame. Torque rod is inserted in power assembly, in position which places drilling head at base of cut. Drilling proceeds until the limit of the first torque rod is reached, then a second rod section is inserted and the process is repeated. In tests, an 8-in. hole was driven electrically through clay a distance of 40 ft. in 4 hr. This job was done from a 15-ft. long trench. Standard 8-in. holes may be enlarged by use of a reamer. Pipes are jacked through holes.—**Detrick Lateral Earth Drill, 14th at Maple, Quincy, Ill.**

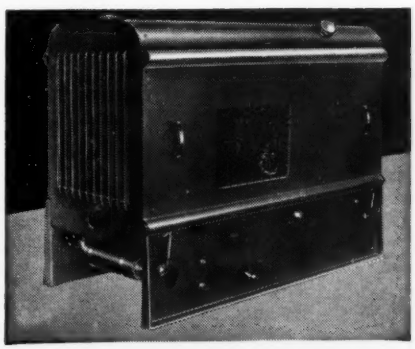
310

LOW-COST STONE CRUSHER—An experimental model of a super-size double impeller impact breaker has been constructed. Manufacturer expects that the machine will handle any stone fitting into a 2-yd. shovel. It is designed to produce aggregate in minus 8 in. and minus 3½ in. Two impellers which strike the stone in midair as it falls into the breaking chamber will each weigh 13,400 lb. with bars. Each impeller will have three pairs of 500-lb. bars. Rotating in opposite directions, the impellers will be capable of a maximum speed of 785 rpm. It is estimated that each impeller will require a separate power unit of from 100 to 125 hp.—**New Holland Machine Co., New Holland, Pa.**

311



HAND-HELD PENCIL SHARPENER — Small tooth with hollow-ground cutting blade mounted in plastic case is called "Hold-'n-Hand" pointer pencil sharpener. Pencil is sharpened by inserting in hole in case and twisting it as case is held in other hand. A container catches the pencil shavings. "Stop" device indicates by feed when pencil is correctly pointed, eliminating wasteful chewing up of lead. A turn of a ball-bearing indicator cap makes possible a point for every purpose, including standard points, draftsmen's professional long-lead blunt or long-lead sharp points. Device is of convenient size, small enough for pocket or purse, desk drawer, drafting table or school kit.—**Triple "E" Products Co., 4517 Olive St., St. Louis 8, Mo.**



LOW-COST ELECTRIC POWER!

Convenient electric power is available to you . . . anywhere! Fairbanks-Morse offers performance-proved generating plants that give reliable service, even under heavy loads, for years! There's a model to meet your specific requirements. Excellent standby units. Available in capacities 350 to 35,000 watts . . . A.C. or D.C. automatic or remote control. Write Fairbanks, Morse & Co., Chicago 5, Ill., for folder ADB-400.

FAIRBANKS-MORSE

A name worth remembering

DIESEL LOCOMOTIVES • DIESEL ENGINES • STOKERS • SCALES • MOTORS • GENERATORS
PUMPS • RAILROAD MOTOR CARS and STANDPIPES • FARM EQUIPMENT • MAGNETOS

Parmanco

MECHANICAL FEED HORIZONTAL DRILL WITH TRACTION DRIVE

Ten years of field test has proven that our power-feed design of direct, transmission and worm gearing with two-speed control will not only cut shot hole drilling time in half but also eliminates costly maintenance delays. V-belt drive to the power-feed with an additional ample clutch in that assembly gives absolute control of a drilling speed of two to three feet per minute with a retrieving speed of twenty-four feet per minute.

The Parmanco Horizontal is adapted to all forms of high-wall drilling, will handle a six-inch auger up to a distance of sixty feet or more and, by use of our patented augers with interrupted flights and secondary cutters, will drill an absolutely clean hole with a minimum of torque. It permits the drilling of a controlled-angle hole which makes possible a great saving of explosives through the cantilever effect of this controlled-angle drilled hole.

EFFICIENT STRIPPING STARTS WITH EFFICIENT DRILLING

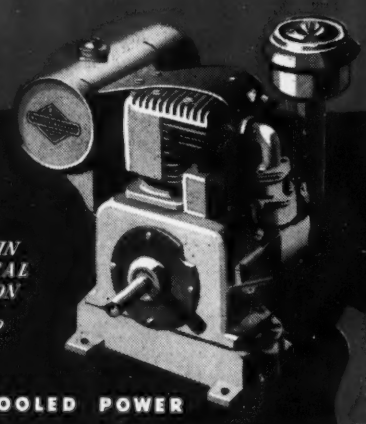
PARIS MANUFACTURING COMPANY

PARIS, ILLINOIS

4 CYCLE
BRIGGS & STRATTON
GASOLINE ENGINES

Now 3 1/2 Million

A NOTABLE CONTRIBUTION TO WORLD PROGRESS



Attend WISCONSIN CENTENNIAL EXPOSITION Milwaukee August 7-29

★ AIR-COOLED POWER

Preferred Power FOR INDUSTRIAL CONSTRUCTION RAILROAD AND FARM EQUIPMENT

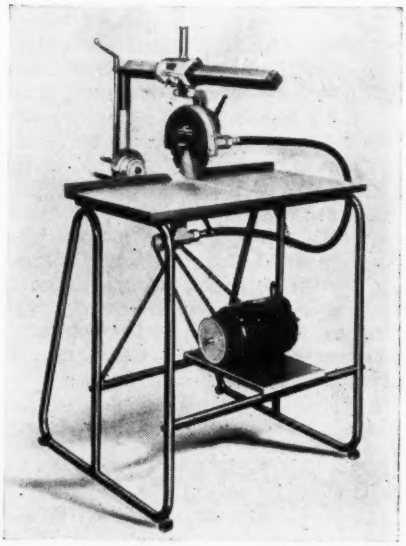
The 3½ millionth Briggs & Stratton 4-cycle gasoline engine has recently come off the production line — headed for a job that requires *dependable* power. For 30 years these engines have met the most exacting demands on appliances and on industrial, railroad, construction, and farm equipment. The preference for Briggs & Stratton engines is a tribute to the experience and skill of the men and women who build them.

BRIGGS & STRATTON CORPORATION • MILWAUKEE 1, WISCONSIN, U. S. A.

312

OPEN GEAR LUBRICANT — Advantages claimed are: Stays put under extreme heat conditions. Does not solidify or become brittle at temperatures below zero. Maintains body and lubricating qualities under conditions of extreme heat. Pennsylvania crude oils rather than asphaltic base material, are used in compounding product that is made in both summer and winter grades for all types of open gears on heavy-duty equipment. Has melting point above 300 deg. F.—**D-A Lubricant Co., Inc., Indianapolis, Ind.**

313



PORTABLE POWER SAW—All-purpose bench saw cuts up to 15 in. wide and 3 in. thick. Table is 16 in. wide, 30 in. long and 30 in. high. Equipped with 8-in. dia. saw operating at 4,500 rpm. Flexible shaft drive eliminates motor interference. By loosening two nuts, saw knocks down into two 50-lb. units. Designed to fill gap between expensive stationary power saw and hand tool. Can be turned, tilted, raised, lowered and moved along sliding arm for cutting action or location.—**Foster Mfg. Co., 1 Kinsey Ave., Buffalo 17, N. Y.**

314

ASPHALT CONDITIONING ADDITIVE — Thermoplastic copolymer compound is added to improve qualities of straight asphalt. Advantages claimed are: resistance to brittleness and cracking in cold weather, greater adhesion, increased strength and greater impermeability and non-bleeding at high temperatures. Product is named Nerva-Seal. This inorganic substance, although of a dense nature, melts easily in any oil bath and blends quickly with liquid asphalt with slight agitation.—**Rubber & Plastics Compound Co., 30 Rockefeller Plaza, New York, N. Y.**

EXPERIENCE is The Best GUIDE!

Men who use shovels or similar types of heavy duty material handling equipment, need not be reminded of the important part that wire rope plays in determining their final production costs.

Experience has proved that the longer a rope lasts, the lower is its cost per unit of work done. Less time, too, is wasted in making replacements.

It is *also the experience* of a large number of Wire Rope users that they can depend on Preformed "HERCULES" (Red-Strand) Wire Rope for top-flight performance. Its toughness . . . its easy spooling . . . its unusual endurance—make for longer life, faster work, and lower operating cost.

Our Engineering Department will gladly submit detailed recommendations for any Wire Rope Job! Just ask us.

"HERCULES"* (RED STRAND)
the DEPENDABLE WIRE ROPE for any TOUGH JOB

* REG. U.S. PAT. OFF.

MADE ONLY BY

A. LESCHEN & SONS ROPE CO.

ESTABLISHED 1857

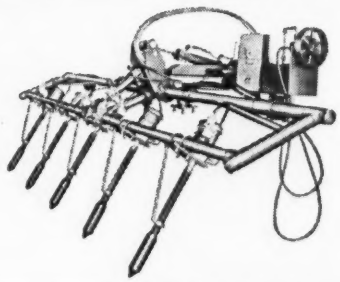
5909 KENNERLY AVENUE • ST. LOUIS 12, MISSOURI

NEW YORK • CHICAGO • DENVER • SAN FRANCISCO • PORTLAND • SEATTLE

THE MODERN CONSTRUCTION OF CONCRETE HIGHWAYS AND AIRPORT RUNWAYS DEMANDS...

FULL DEPTH INTERNAL VIBRATION

Write today for complete details on the VIBER method of full depth vibration

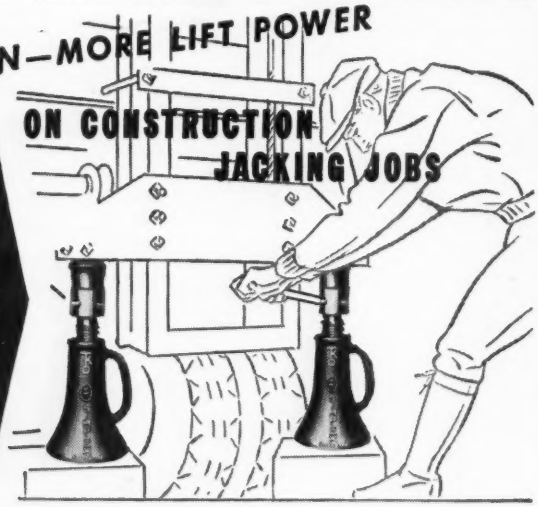


Illustrated catalog furnished on request

VIBER COMPANY
EST. 1931
ORIGINATORS OF INTERNAL CONCRETE VIBRATION
726A South Flower Street, Burbank, Calif.

FOR LESS FRICTION—MORE LIFT POWER ON CONSTRUCTION JACKING JOBS

USE SIMPLEX Screw Jacks



Simplex Screw Jacks cut friction 88% with a single, chrome-molybdenum steel pivotal ball nested under cap to center load—won't flatten. Drop forged steel cap is non-slip, with self-leveling 9 degree float—positively will not twist out from under load.

Housings of tough malleable iron have broad base for stability. Safety peephole in base. Color indicates jack capacity. High carbon steel bars are 40% stronger than ordinary bars.

THE SAFER, STURDIER JACKS FOR CONTRACTORS, BUILDERS AND OPERATORS OF ALL TYPES OF HEAVY EQUIPMENT

RATCHET OR 4-WAY HEAD TYPES
31 MODELS
CAPACITIES 10 TO 24 TONS
ASK FOR BULLETIN INDUSTRIAL 48

Simplex LEVER · SCREW · HYDRAULIC Jacks

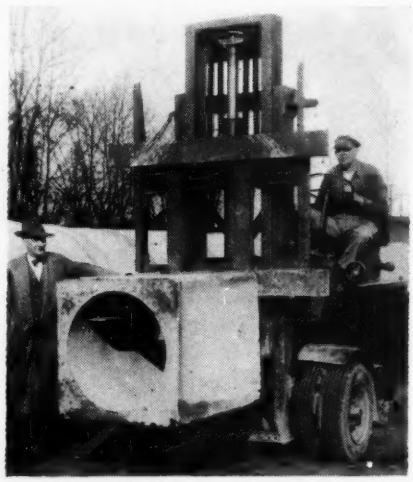
TEMPLETON, KENLY & COMPANY
1008 South Central Ave., Chicago 44, Illinois

(For more information on new products, use coupon, p. 120.)

315

AXLE SHIFT CONTROL — Automatic electric shift now available for Eaton heavy-duty, two-speed axles used on trucks with capacity of 3 tons or more, permits driver to change from low to high axle ratio and back by flick of finger without declutching or releasing accelerator. Advantages: (1) Assures more positive action with less possibility of failure; (2) easier to service and simpler to install. Also available is semi-automatic electrical control which requires clutch and accelerator action but is more positive than present shifts.—**Eaton Manufacturing Co., Cleveland, Ohio.**

316



SPECIAL TYPE CONCRETE PIPE—When a customer needed a special type of concrete pipe this maker created a new form that makes a square exterior but has the customary round interior. Illustrated is a piece of 36-in.-type pipe on a lift. It was part of a larger order.—**Universal Concrete Pipe Co., Rochester, N. Y.**

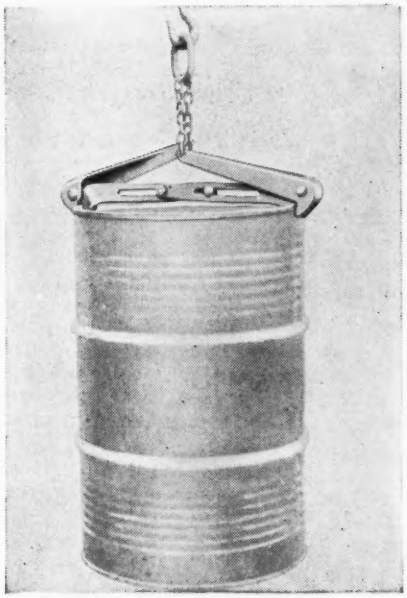
317

HEAVY-DUTY OIL, named Colonel Drake, fully detergent and dispersive and especially compounded for diesel and gasoline engines, is refined from 100 percent Pennsylvania crude and is said to lengthen engine life and to reduce maintenance costs. Foaming is prevented by chemical additives. Sludge and soot particles are kept in constant suspension so that they drain off during oil changes. Other advantages claimed: eliminates ring sticking and bearing troubles; low pour point assures minimum drag and easy starting; high viscosity index, assures less thinning out at high operating temperatures. —**Pennsylvania Refining Co., Butler, Pa.**

318

ALUMINUM BUILT-UP ROOFING—For new roofs or repairs to old ones there has been developed an embossed aluminum product which reflects sun heat and thus protects underlays of asphalt and saturated felt. It does not absorb water and prevents oxidation. It is easily worked and can be rapidly molded over uneven surfaces and around vents and parapet walls. It is fire-resistant.—**Reynolds Metals Co., 19 East 47th St., New York 17, N. Y.**

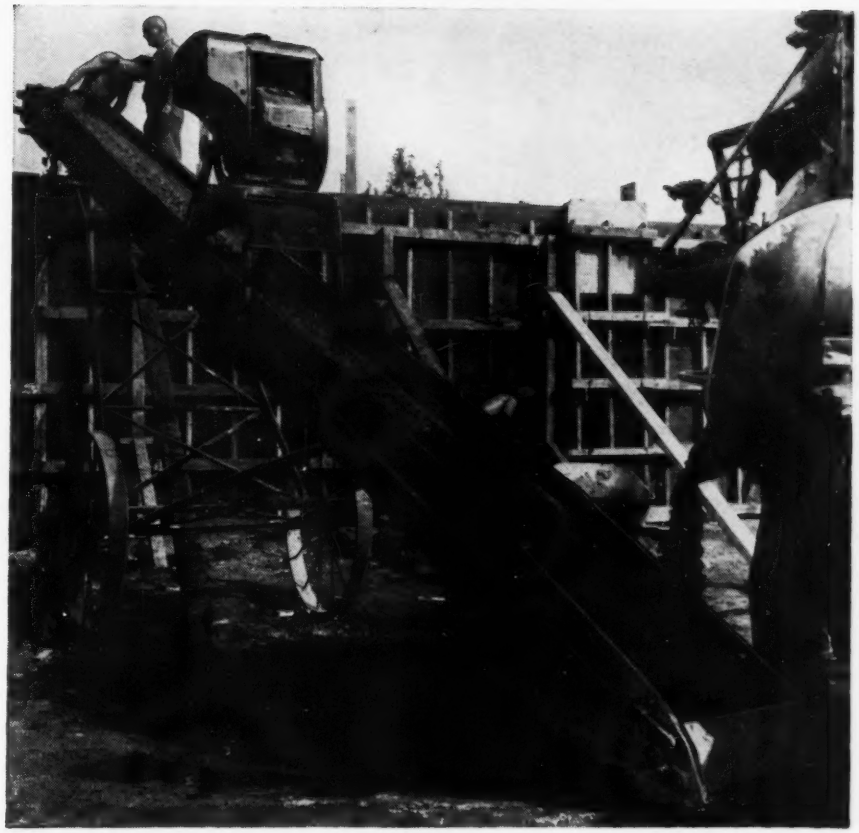
319



DRUM CHIME TONGS—To solve problem of moving, loading and stacking drums, lightweight drum chime tongs are now being made for heavy-duty service. They can handle all drums safely, with or without heads, from 18- to 24-in. dia. Drums may be moved into and out of storage and stacked in tiers to any height.—**Downs Crane and Hoist Co., Los Angeles, Calif.**

320

OXYACETYLENE WELDING TORCH—New Airco 800 weighs 1½ lb. and is only 11½ in. long. Suitable for any welding job from thinnest sheet metal up to 1½ in. in thickness, offering wide operating range. Better flame control is claimed by having each welding tip assembled with an individual mixer drilled for that particular size tip. Fewer torch head replacements and lower maintenance costs are made possible by torch head of durable, long-wearing monel metal. Cutting attachments are available for new torch. Has capacity for operating single flame welding tips from Nos. 0-13 inclusive as well as multi-flame tips up to No. 15.—**Air Reduction Sales Co., 60 E. 42d St., New York 17, N. Y.**



Farquhar Trough Conveyor
"PAYS FOR ITSELF"

handling wet concrete from mixer to forms

ON one job alone, handling wet concrete from mixer to forms, this Farquhar Trough Conveyor — Model 343 — more than *paid for itself* in time and labor saved. No hoist operator was needed; scaffolding was eliminated on this construction project . . . the Farquhar Conveyor fed concrete to the forms at the rate of one cubic yard a minute—faster than the contractor believed was possible.

For All Handling Jobs

General-utility Farquhar Trough Conveyors handle sharp or abrasive materials, fine or powdery materials, small bags or bundles *faster, better, cheaper* than old-fashioned handling methods. Contractors, chemical plants, coal yards, warehouses—all industries turn to Farquhar for the right answers to specific handling problems. Farquhar offers a complete line of conveyors for portable, semi-permanent or permanent use, handling all kinds of loose or packaged materials. Tell us your problem—we have the know-how to help you. Write A. B. Farquhar Co., Conveyor Division, 232 Duke St., York Pa., or 622-A W. Elm St., Chicago 10, Ill.

MOVING DIRT *from basement excavation direct to dump truck with gas engine-driven Farquhar 334-T Conveyor saves time for contractor . . . hard, back-breaking work for men.*

Farquhar PORTABLE OR PERMANENT MATERIALS HANDLING **CONVEYORS**

A. B. FARQUHAR COMPANY · CONVEYOR DIVISION

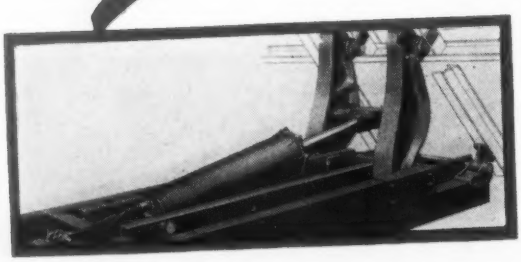
HYDRAULIC PRESSES
FARM EQUIPMENT
FOOD PROCESSING AND
SPECIAL MACHINERY

PERFECTION IS THE NAME TO

Remember

WHEN YOU WANT

Clean ✓ DESIGN ✓ CONSTRUCTION ✓ PERFORMANCE in BODIES and HOISTS



Top photo shows a PERFECTION No. 354 Dump Body, 6 yd. capacity; with No. 727 Iso-Draulic ROLL-A-LIFT Hoist shown in bottom photo.

Write for Complete Information

THE PERFECTION STEEL BODY CO.

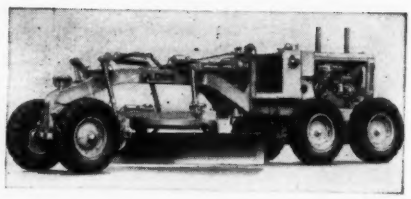
Galion, Ohio, U.S.A.

BETTER ROADS FOR A BETTER WORLD — 45th Annual Convention and Road Show — SOLDIER FIELD CHICAGO — JULY 16-24, 1948

PERFECTION
STAKE and DUMP BODIES
HYDRAULIC HOISTS

FOR ANY TRUCK
STANDARD or SPECIAL UNITS
IN ALL SIZES : FOR ANY USE

321

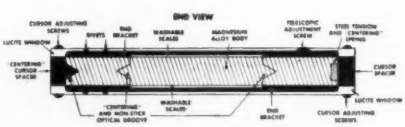


HEAVY-DUTY MOTOR GRADER—Manufacturer has just released information on a new extra heavy-duty motor grader. A few of the outstanding features listed in specifications are 100-hp. diesel engine; weight range of 23,285 to 25,050 lb., depending upon extra equipment; complete hydraulic control; manual steering with hydraulic booster; all-gear tandem drive, 14.00x24 low pressure tires, both front and rear; eight forward speeds giving a range of 1.5 to 26.0 mph. Model 116 is said to be designed and constructed to handle the heaviest and toughest kind of work. Precision controls permit grading to exacting specifications.—**The Galion Iron Works & Mfg. Co., Galion, Ohio.**

322

SAW FILER—Tool for expert saw filing is equipped with a guiding device that may be swung into five different positions so that the file will move either at right angles to the blade or at various other angles. Two positive adjustments set the correct pitch and angle for any type of handsaw and are maintained throughout the filing operation. Useful for filing cross-cut or rip saws and can also be clamped to a beam over work bench for accurately controlled filing.—**Speed Corp., Portland, Ore.**

323



ALL METAL SLIDE RULE—Precision instrument to meet need for enduring accuracy under all conditions of handling. For all-metal construction of rule with magnesium alloy body, advantages claimed include: non-warping; precision manufacture to 0.001-in. tolerance; grooves and spring channels keep cursor centered and away from scale surface; precision made adjusting screws for the easy and accurate line-up of scales; optical groove centers slider and affords easy, accurate settings; slider does not stick, bind or wobble. Surface and entire rule unaffected by constant cleaning.—**Pickett & Eckel, Inc., 1111 So. Fremont Ave., Alhambra, Calif.**

Maximum Power . . . Minimum Weight

Maximum power . . . 275 horsepower in 743 cubic inches of displacement in a compact engine. Minimum weight . . . only 10.36 pounds per horsepower.

Faster work cycles and extra payloads result from this increased horsepower, low weight and compact design. The Exclusive Cummins Fuel System and other tested features of the Cummins line combine to make Series NH engines a high point in the modern diesel trend.

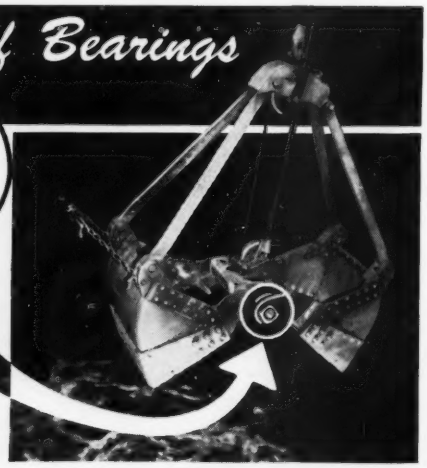
The supercharged Cummins Model NHBIS-600 is rated at 275 hp maximum at 2100 rpm . . . Model NHBI-600 is rated at 200 hp maximum at 2100 rpm. These engines are working on jobs like yours, near you. Ask your Cummins Dealer for actual operating records.

CUMMINS ENGINE COMPANY, INC. • COLUMBUS, INDIANA

OWEN BUCKETS carry Dunking Insurance

Sealed Grit-Proof Bearings

RIGHT HERE



Day in and day out, on the job in sand and gravel pits and hard at work dredging, Owen Buckets carry "dunking" insurance in the form of sealed, grit-proof center shaft bearings.

Abrasive materials are prevented from causing excessive wear and longer bucket life is assured.

The Owen Bucket Company
6020 Breakwater Avenue, Cleveland, Ohio
Branches: New York • Philadelphia • Chicago • Berkeley, Cal.

CONTRACTORS RUBBER PRODUCTS
available from Stock for immediate Delivery

CONVEYOR, ELEVATOR and TRANSMISSION BELTING
all widths and plys

V-BELTS all sizes

HOSE all sizes

AIR	WATER	SUCTION	COMPRESSOR
FUEL	STEAM	WELDING	PILE DRIVERS
FIRE	VACUUM	DISCHARGE	ROAD BUILDERS

and BOOTS, DREDGE SLEEVES, PUMP DIAPHRAGMS, ETC.

and everything rubber for Industrial Requirements

PHONE . . WIRE . . WRITE — Write for new catalog

CARLYLE RUBBER CO., Inc.
62-66 PARK PLACE NEW YORK 7, N. Y.
Phone: BArclay 7-9793

(For more information on new products, use coupon, p. 120.)

324

SPONGE RUBBER STANDING MAT—Designed to reduce or relieve fatigue, foot discomfort, tired and aching leg and back muscles of workers who must stand for long hours, new sponge rubber standing mat is ⅜ in. thick, 20 in. long and 18 in. wide and weighs 3½ lb. For machine operators and others, new mat places a soft material between feet and floor.—**B. F. Goodrich Co., Akron, Ohio.**

325

CORNER WINDOW—Fenestra corner window combination includes two large fixed panes at corner of house and one ventilating casement at each side of group, providing good cross-ventilation. Vents operated by finger-tip control swing out to intercept breeze from several directions. Screening may be confined only to portion of window that opens and is provided by metal screens which are attached or removed from inside. These windows are standardized products.—**Detroit Steel Products Co., 3141 Griffin St., Detroit 11, Mich.**

326

LIGHTWEIGHT BUILDING MATERIAL, named Durisol, is made of chemically treated and impregnated wood fibers mixed with Portland cement with built-in insulation, sound proofing, fireproofing and waterproofing. It is available in panels, slabs and blocks and can be used for exterior walls, floors, roofs and ceilings. May be made with Portland cement plaster coating on one or both sides and thus needs only to be set in place to provide finished wall. Durisol wall 4 in. thick is said to be equal in insulation value to a 20-in. wall of brick and mortar. Other advantages: (1) Construction time cut in half; (2) no mortar needed; (3) only half number of studs necessary, saving lumber; (4) dry-wall construction possible as strip of felt only is used between tongue-and-grooved panels to make them watertight.—**Durisol, Inc., 420 Lexington Ave., New York City.**

327

WELDING ELECTRODE — All-position arc-welding electrode for mild steel available in ⅛-, 5/32-, 3/16-, 7/32-, ¼-, and 5/16-in. diameters. Operation satisfactory when welding vertically down. Minimum spatter with either ac or dc current. Deposited bead is strong, smooth, of proper contour and slag is easy to remove.—**Wilson Welder & Metals Co., Inc., 60 E. 42d St., New York 17, N. Y.**

328

ALUMINUM ROOFING AND SIDING—Produced as replacement for lumber in residential construction in lengths of 10, 12, 14 and 16 ft. and widths of 67⅞ in. Thickness is 0.030 in.; weight is 580 lb. per 1,000 sq. ft. of wall coverage. Can be applied over existing wood sheathing or nailed directly to studs, requiring no sheathing other than standard building paper. Aluminum sections are formed with concave surfaces and lock with a spring action, assuring weathertightness. Both siding and roofing can be worked by carpenters with regular wood tools. Any house paint can be used on metal finish. New aluminum line also includes window flashings, door openings and corner trim. Nailing lip on lower edge of siding is prepunched with elongated holes.—**Permanente Metals Corp., Kaiser Building, 1924 Broadway, Oakland 12, Calif.**

329

POWER DRIVE PIPE CUTTER—New power drive has been developed for operating hand pipe cutters, threaders and reamers. New unit weighs only 100 lb. Cleanly housed in a case, it has a 3-jaw lathe-type scroll chuck in front and a self-centering workholder in the rear which turns with the pipe. It has sealed-in lubrication and plugs into any 110-a.c. light socket.—**The Ridge Tool Co., Elyria, Ohio.**

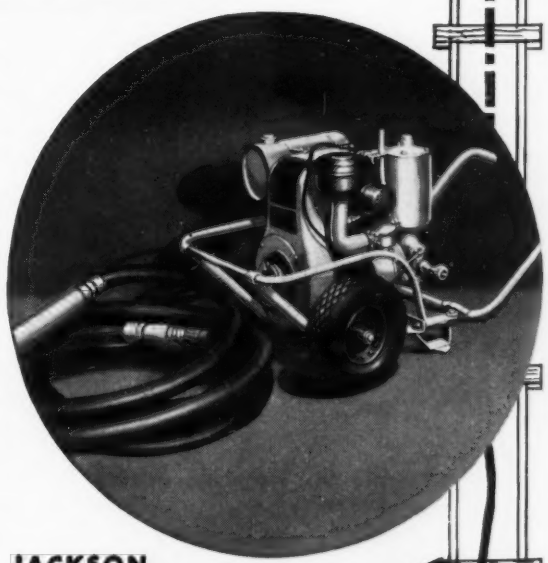
The JACKSON
HYDRAULIC VIBRATOR'S

50-FOOT REACH
Saves numerous relocations

50 FOOT REACH

This famous, time-proved concrete vibrator, which rates Ace-High with the vast majority of contractors, is now available with hose lengths up to 50 feet — a feature that saves plenty of time by making frequent relocations unnecessary.

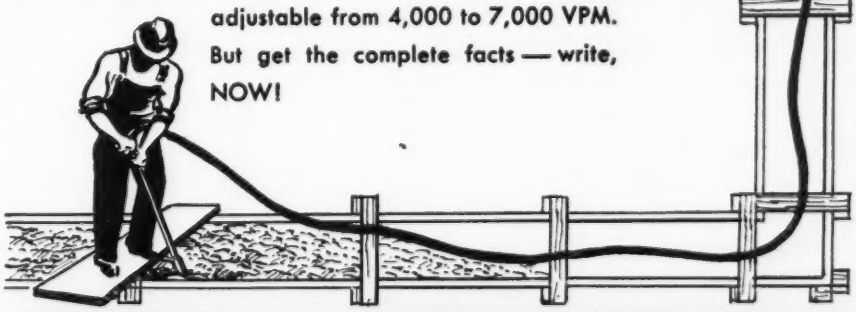
Improved, interchangeable fittings permit reversing hose handle when vibrator end shows wear, thus doubling hose life and use. If you are not thoroughly acquainted with the Jackson Hydraulic, write for the complete facts, at once. With these at hand you will quickly recognize it as the most dependable, trouble-free vibrator in its class, ideally suited to general concrete construction.



JACKSON
CONCRETE VIBRATOR
Model HS-A2

50 FOOT REACH

There are no troublesome parts to break, and since all parts run in oil, no lubrication problem. It's powered by a husky Wisconsin engine and frequency is instantly adjustable from 4,000 to 7,000 VPM. But get the complete facts — write, NOW!



ELECTRIC TAMPER & EQUIPMENT CO.
LUDINGTON MICHIGAN

"SOME BIG CONSTRUCTION JOB GOING ON DOWN THERE"

"YEAH! GOOD JOB, TOO! THEY'RE USING

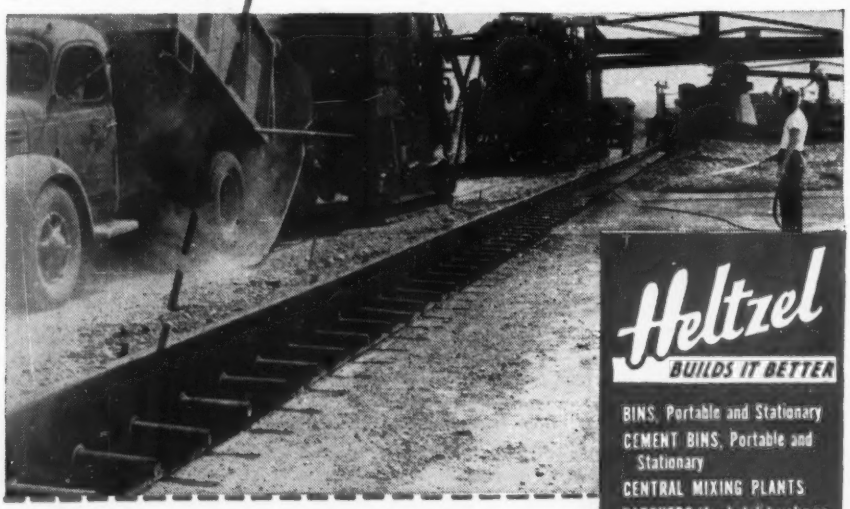
HELTZEL STEEL FORMS

Airport, highway, sidewalk, curb and gutter, or whatever job it might be, there are sure to be Heltzel Steel Forms in the picture. You depend on Heltzel because their concentrated engineering has worked every detail to practical purpose. Each exclusive feature added has eliminated another problem for you.

Heltzel Standard 1/4" Form

The same practical engineering that designed the special dual duty forms for the Patterson Field job is found in every Heltzel Steel Form. The standard form (illustrated above) is built to last, handle easily, and produce a better job. Moved from job to job, year in and year out, they set quickly, interlock smoothly, and strip away easily. They stay rigid because THE SINGLE WEDGE POCKET HOLDS STAKES FIRM—they can't vibrate loose.

Special Heltzel dual duty forms at Patterson Field carried the heaviest construction equipment ever supported by any forms. The same set of forms were used for both 21" and 25" slabs.



Heltzel BUILDS IT BETTER

- BINS, Portable and Stationary
- CEMENT BINS, Portable and Stationary
- CENTRAL MIXING PLANTS
- BATCHERS (for batch trucks or truck mixers with automatic dial or beam scale)
- ROAD FORMS (with lip curb and integral curb attachments)
- CURB FORMS
- CURB AND GUTTER FORMS
- SIDEWALK FORMS
- CONCRETE BUCKETS
- TOOL BOXES
- FINISHING TOOLS FOR CONCRETE ROADS

Heltzel Steel Form & Iron Company, Warren, Ohio

Send me the following:

[ ] B-19 Steel Highway and Airport Forms

[ ] B-19A Steel Dual Duty Airport Forms

[ ] A-20 Steel Forms for Curbs or Curb and Gutters or Sidewalks.

Name_____

Address_____

City_____ State_____

(Type of construction usually engaged in)

HELTZEL STEEL FORM & IRON CO. WARREN, OHIO · U. S. A.

330

MOBILE LUBRICATOR — Trail-Luber is a compact, self-powered unit for servicing construction equipment in field. Equipment includes: two-compartment hopper for pressure lube and gear lube; two air-operated pumps; two 20-ft. lubricant hoses with suitable adapters; one 25-ft. air hose with air-line coupler tire chuck and blower valve; a Briggs & Stratton heavy-duty engine rated at 1¾ hp.; and an air compressor with 15-gal. storage tank which delivers 7 cfm. Two models available: one skid mounted for easy mobility on pick-up truck or for stationary mounting on dock or platform; the other easily pulled behind car, truck or tractor, is mounted on automotive type wheels with pneumatic tires.—**Gray Co., Inc., Grace Square, Minneapolis 13, Minn.**

331

VERTICAL DRILL—McCarthy vertical drill, mounted on 1½-ton truck, or larger, handles earth-drilling augers up to 20 in. Powered by a 32-hp. air-cooled motor, drill rods and boom are hydraulically controlled. Two individually operated jacks eliminate strain from truck springs, when drilling and during transit derrick is lowered over power unit.—**Salem Tool Co., Salem, Ohio.**

EUCLID
Rear Dump TRUCK
Model FD 15 TONS

but steering is EASY

with VICKERS HYDRAULIC POWER BOOSTER

Tough, rough and roadless operations on airports, road construction, levees, etc., are easy when trucks are equipped with the Vickers Hydraulic Power Steering Booster. No backlash or road shock can be transmitted to the steering wheel. Steering load is carried by the hydraulic cylinder—not by the driver's muscles. An integral relief valve automatically protects the hydraulic system against damage by overload.

The Vickers Hydraulic Power Steering Booster is compact, rugged, powerful. Installation is simple and requires minimum space. Lubrication is automatic. Write for Bulletin 47-30 for all the facts about Vickers Hydraulic Power Steering.

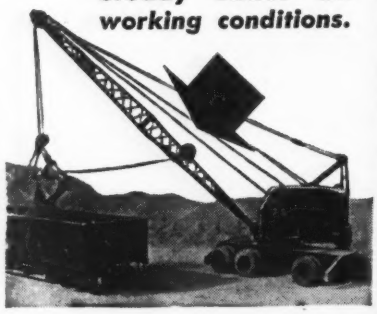
3491

VICKERS Incorporated
DIVISION OF THE SPERRY CORPORATION
1494 OAKMAN BLVD. • DETROIT 32, MICHIGAN
ENGINEERS AND BUILDERS OF OIL HYDRAULIC

Application Engineering Offices:
ATLANTA • CHICAGO • CINCINNATI • CLEVELAND • DETROIT • LOS ANGELES • NEWARK • PHILADELPHIA • PITTSBURGH • ROCHESTER ROCKFORD • ST. LOUIS • SEATTLE • TULSA • WASHINGTON • WORCESTER

RUD-O-MATIC TAGLINE

Provides positive, steady tension — holds buckets steady under all working conditions.



Spring tension holds buckets steady. No weights, pins, tracks, or carriages. Cable saving more than pays for RUD-o-MATIC. Compact—easily installed. Eight models to fit all bucket sizes.

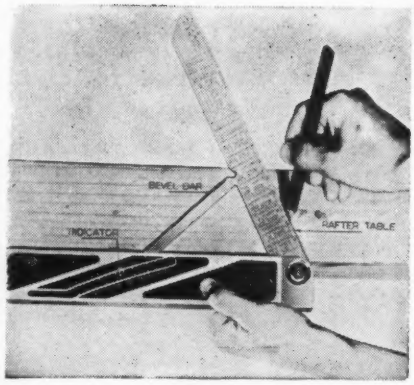
RUD-o-MATIC Taglines are used as standard equipment by most crane manufacturers. Spring tension is powerful enough to hold a clam shell bucket steady. Operates with boom at any angle. Compact – it can be installed in less than thirty minutes. No pins, weights, tracks, or carriages to wear or be replaced. Taglines are complete with fairlead U bolt clamping plates, and cable attached. Immediate delivery – see your equipment dealer – or write –

- *Dealers—selected territories in Midwest and Northwest are still open. Write for all details.*

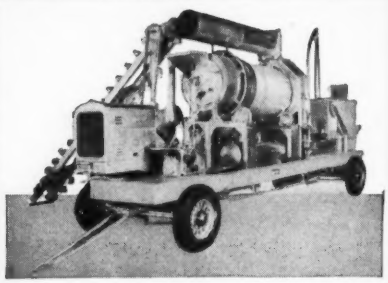
RUD-o-MATIC combination Magnet Reel and Tagline . . . operates on spring tension principle with tagline attached to magnet to steady – and electric cable fastened to magnet connections with all slack needed to prevent cable from being pulled or jerked loose from connections. Exclusive with RUD-o-MATIC.

McCAFFREY RUDDOCK *Tagline* Corporation

2131 East 25th St., Los Angeles 11, Calif.



FRAMING SQUARE — New automatic framing square permits carpenters to solve roof-framing problems accurately. Device combines framing square with simple tables. Operator need only to know width of building and pitch of roof to get length required, as well as pattern for marking cuts. Tool has jackknife blade with rafter tables incorporated on either side to determine length of rafters. Blade is raised until indicator is opposite rise per foot and an accurate pattern for both plumb cuts and mitre cuts is provided.—**Lloyd L. Crowley, 1880 S. 12th St., Salem, Ore.**



PORTABLE ASPHALT PLANTS

Complete units for pavement maintenance. Capacities—4, 8, 12, 25 tons per hour.

Other Products

CONCRETE VIBRATORS
Gasoline Engine and Electric Motor Driven Models

HEATING KETTLES
for Asphalt and Tar

AGGREGATE DRYERS
for Stone and Sand

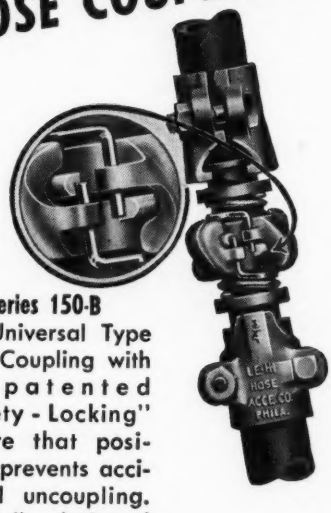
FRONT END LOADERS
for Industrial Tractors

WRITE FOR CIRCULARS

White Mfg. Co.

ELKHART INDIANA

LE-HI HOSE COUPLINGS

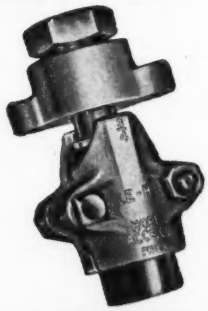


LE-HI Series 150-B
The Universal Type Hose Coupling with the patented "Safety - Locking" feature that positively prevents accidental uncoupling. Especially designed for compressed air service.

CAN TAKE IT!

LE-HI Series 400
• The ideal "all-purpose" coupling for heavy-duty, high-pressure service. For air, water, steam, etc. Extra heavy construction for maximum safety, efficiency and service life.

LE-HI Series 300
A tough, sturdy coupling designed especially for use with jack hammers, tampers, rock drills, sinkers, etc. Corrugated-shank stem has collar to engage front lug of high-pressure clamp for extra protection against leakage or "blow-offs."



LE-HI MAKES A GOOD CONNECTION!

Go to your local distributor for these rugged, economical LE-HI Hose Couplings — NEVER SOLD DIRECT.

LE-HI HIGH and LOW PRESSURE HOSE COUPLINGS

HOSE ACCESSORIES CO.
2738 North 17th Street
Philadelphia 32, Pennsylvania

(For more information on new products, use coupon, p. 120.)

333

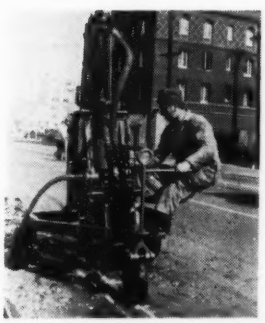
HOUSE FLASHING SYSTEM—Neatly-packaged house flashing system, now being produced, includes 10 sheets of 31-gage tempered rustproof copper, precut to 18x48 in., and 200 hardware bronze nails. New product is especially adapted for use in low-cost residential building. Two packages are enough to flash adequately average low-cost 5- or 6-room house. — **Revere Copper and Brass, Inc., 230 Park Ave., New York N. Y.**

334

RIVET STUD—For attaching corrugated metal roofing to steel purlins, rivet studs are flux-filled in the base and end-welded in position on purlin with a Nelson stud welding gun. Operator works from top side of roof only, requiring no rigging or scaffolding below. After Rivweld is welded, corrugated sheet is set in place over studs and stud extension is driven through sheets by rubber hammer. Stud extension is then upset and rounded off by machinist's hammer and ordinary rivet set.— **Nelson Sales Corp., Toledo Ave. and East 28th St., Lorain, Ohio.**

BREAK PAVEMENT
the low cost way!

with



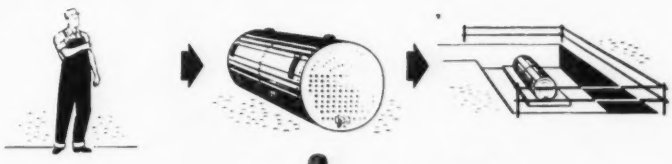
RAPID PAVEMENT BREAKERS

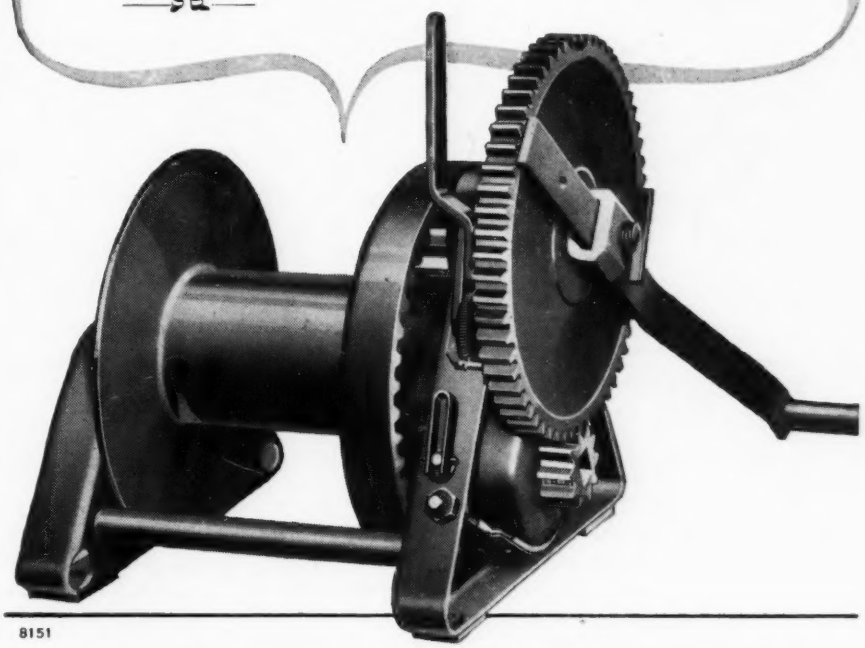
ONE 105 C.F.M. AIR COMPRESSOR
+ ONE MAN
+ The New and Mighty
MIDGET
= 4 TIMES THE WORK
When Breaking or Tamping
Write for Complete Information

R.P.B. CORPORATION
2751 EAST 11th STREET • LOS ANGELES, CALIFORNIA

Would you believe . . .

that one man, with no power equipment . . . **can haul this heavy boiler . . .** **out of this deep pit?**





8151

The job's a cinch . . . with
HANDIWINCH

● It's easy as **ABC** . . . here's how he'd do it . . .

(A) Carries HANDIWINCH to the job. (B) Sets it up on any firm support. (C) Anchors it. (D) Using planks for a ramp, he fastens rope to boiler and hauls it up and out.

Stoutest, most ingenious small winch ever built, HANDIWINCH and *one man* can handle any lifting or pulling job up to 10,000 lbs. All steel construction . . . cut gears . . . two power ratios . . . powerful hand brake . . . many "big hoist" features.

Ask your distributor . . . or write direct for folder HW-15, showing many typical HANDIWINCH set-ups.

American Hoist
and DERRICK COMPANY
St. Paul 1, Minnesota

Plant No. 2: So. Kearny, N.J.

Sales Offices:
CHICAGO • PITTSBURGH • SAN FRANCISCO • NEW ORLEANS • NEW YORK

For Armored Construction . . . specify
AMERICAN BLOCKS AND SHEAVES
A wide line of wire rope blocks—many types, all sizes, in capacities from 1½ to 250 tons. Thick steel side plates, heavy pins and axles. Ask for American equipment when ordering.

For fastening wire rope, use genuine
CROSBY CLIPS

Hot dip galvanized—high wings—grooved saddle—precision cut threads. To make sure you get genuine CROSBY CLIPS, look for the famous Red U-Bolt. All sizes—⅛ to 3 inches. Distributors everywhere.

...AND THE CHOICE WAS 100% BLUE BRUTES!

Two Blue Brute Portable Compressors powering four Blue Brute UMW-40 Wagon Drills, breaking ground for the Franklin D. Roosevelt Veterans' Hospital near Peekskill, N. Y. Part of the All-Blue-Brute equipment used for rock excavation by the Mt. Vernon Contracting Corporation of Mt. Vernon, N. Y., sub-contracting for Merritt, Chapman & Scott of New York City and Fred J. Brotherton of Hackensack, N. J.

When a big-time contractor goes all-out for one make of equipment, it's time to sit up and take notice! That's what happened last summer, when the Mt. Vernon Contracting Corporation was awarded the sub-contract of excavating, grading and remodeling the 383-acre site of the huge, $22,400,000 Franklin D. Roosevelt Veterans' Hospital at Cruger's Park, N. Y.

For rock excavation, the Mt. Vernon Corporation selected Worthington Blue Brutes—*100%*—nine 500′ and two 315′ Blue Brute Portable Compressors, fourteen Blue Brute Wagon Drills and eighteen Blue Brute Hand-Held Rock Drills. Equipment-wise from long experience, Mt. Vernon executives knew they could count on Blue Brutes for top performance *all* day — *every* day — under the toughest going.

On your own jobs, hook up a Blue Brute Compressor with Blue Brute Air Tools and watch a hard-hitting combination start things moving—fast! You'll get new ideas about speed, efficiency and economy — and about the Blue Brute teamwork that gives you a comfortable feeling on every bid.

Your nearby Blue Brute Distributor is ready with complete details about features, capacities, performances, etc. Or write to us direct.

H6-7

BUY BLUE BRUTES

KNOW YOUR

BLUE BRUTES

Your Blue Brute Distributor will be glad to show you how Worthington-Ransome construction equipment will put your jobs on a profitable basis.

RANSOME EQUIPMENT

Pavers, Portable and Stationary Mixers, Truck Mixers, and Accessories.

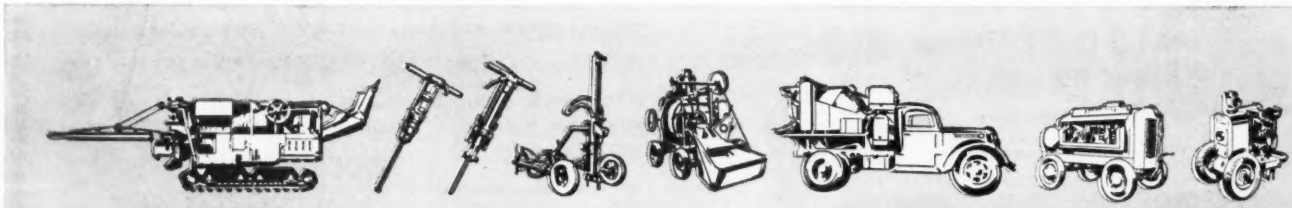
WORTHINGTON EQUIPMENT

Gasoline and Diesel Driven Portable Compressors, Rock Drills, Air Tools, Self-Priming Centrifugal Pumps and Accessories.

WORTHINGTON

Worthington Pump and Machinery Corporation, Worthington-Ransome Construction Equipment Division, Holyoke, Mass.

Distributors in all principal cities



IF IT'S A CONSTRUCTION JOB, IT'S A BLUE BRUTE JOB

WAGNERMOBILE®
MIXERMOBILE MANUFACTURERS
DUO-WAY LIFT

A NEW IDEA in Heavy Materials Handling

The problem of visibility and operator convenience has been solved by Mixermobile in the new WAGNERMOBILE DUO-WAY LIFT by placing the driver crossways. The usual poor visibility forward and behind now becomes GOOD VISIBILITY right or left.

LIFTING CAPACITY . . . . 16,000 lbs.

TOTAL WEIGHT . . . . . 14,500 lbs.

TRACKS . . . . . 16-ft. or 18-ft. Track folds down hydraulically with full operation at any point between vertical and horizontal . . . any height between 9½ ft. and 18 ft.

CONTROLS . . . . . Hydraulic

TRACK TILT . . 7° forward—15° back

OPERATING SPEED . Up to 30 M.P.H. 4 speeds both directions.

A New Member of the Famous

WAGNERMOBILE®
MIXERMOBILE MANUFACTURERS

FAMILY OF PRODUCTS

★ ***See***
this equipment at the ROAD BUILDERS SHOW, July 16-24, Chicago, Ill. Concession 3809 South Concourse.

MIXERMOBILE MANUFACTURERS

6855 N. E. HALSEY STREET ★ PORTLAND 16, OREGON

Compare Results

AND YOU'LL BUY

~~LCR~~ FEATHERWEIGHT STANDARD HEAVY DUTY

OMAHA DRAGLINE BUCKET

★ Box Type Arch—greater strength
★ Special Hardened Lip—cuts like a spade
★ Perfect Balance—carries load evenly, no spilling
★ Light in Weight—modern design and extra strength

FIRST in the Field . . . for over 36 years

DRAKE-WILLIAMS-MOUNT • OMAHA, NEBR.

335

ROCK CRUSHING PLANT — Picture is a model of 500-ton-per-day rock-crushing plant. It includes roller bearing jaw crusher as a primary breaker, elevator, double deck pulsator over steel bin so arranged that oversize is returned to gyrosphere secondary crusher. Model plant shown is one-sixth size of outfit.—**Smith Engineering Works, Milwaukee, Wis.**

PRECISION-BUILT

WECO

HEAVY-DUTY BLOCKS

Extra Strength throughout to withstand sudden shock and strain

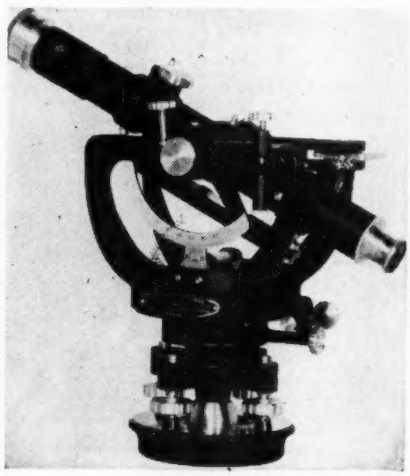
Watch-like precision is maintained throughout WECO Block design materials and manufacture. Specimen blocks have been tested to 12 tons with extra strength to take more load. Full swiveling. Shake-proof washers throughout. Proved in heavy duty oilfield service for general industry use. Write for block catalog.

- **Drop Side**
- **Forged Steel Hook**
- **Snarl-proof**

WELL EQUIPMENT MFG. CORP.
Subsidiary of Chiksan Company
Houston 1, Texas
Exclusive Sales Representative Outside Mid-Continent Area
CHIKSAN COMPANY
Brea, Calif. New York 7
Export Sales: CHIKSAN EXPORT COMPANY, Brea, Calif. New York 7

WECO
Manufacturers and Distributors of Oilfield, Refining, Marine and Industrial Equipment

336



LEVEL TRANSIT—Several new improvements have been incorporated in this transit level, which is designed especially for contractors and is useful in all survey and check-up operations in building and road construction. Improved instrument comes complete with hardwood carrying case, sunshade, dust cap, adjusting pins, plumb bobs, full length split leg tripod, and instruction book.—**David White Co., Milwaukee, Wis.**

New PUBLICATIONS From MANUFACTURERS

The catalogs and bulletins reviewed below will keep you posted on latest developments in construction equipment and materials available for your use

671

BRICK ENGINEERED HOMES—Plan book just published contains floor plans and elevations for 6 newly-designed homes of masonry construction which are part of the industry engineered housing program by brick and tile manufacturers. It is claimed for the system that it reduces costly material waste and time-consuming fitting operations. For each of the home designs in the booklet, working drawings have been developed by an architect skilled in the practical application of modular coordination to small home design.—**Structural Clay Products Institute, 1756 K Street, N. W., Washington 6, D. C.**

Cost-Minded?

You'll find all the basic construction cost data you need for . . .

estimating
planning
specifying
buying . . .

between the covers of one outstanding reference book, the

21st Annual

CONSTRUCTION COSTS YEARBOOK

in the May 27th ENGINEERING NEWS-RECORD

For non-subscription or extra copies, write:

R. F. Boger, *Publisher*

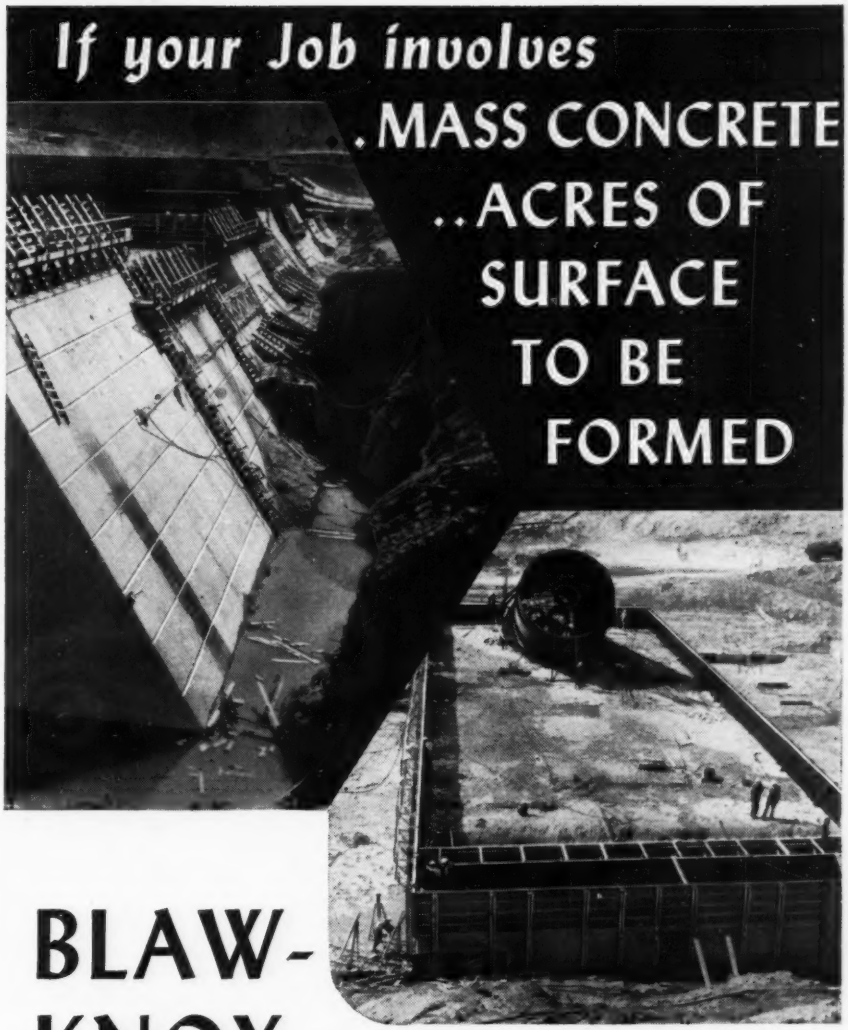
Engineering News-Record

330 W. 42nd St. New York 18

Single Issue Price $2.00

"An indispensable aid to contractors and engineers"

If your Job involves



BLAW-KNOX *has devised an ingenious* **STEEL FORMING** *method for you*

Blaw-Knox has proved the practicability of its forming method for pouring concrete monoliths of gravity type dams—a design of steel form which is easily handled through successive lifts—and which can easily be aligned for all job conditions.

It would be our pleasure to tell you about this tried and proved system of BLAW-KNOX STEEL FORMS for concrete monoliths. You will incur no obligation by asking for this information.

BLAW-KNOX *has the* STEEL FORM "Know How"

◀ Blaw-Knox STEEL FORMS have been serving engineers and contractors for over 40 years. The Blaw-Knox record of accomplishment is shown in Catalog 1836. Send for a copy.

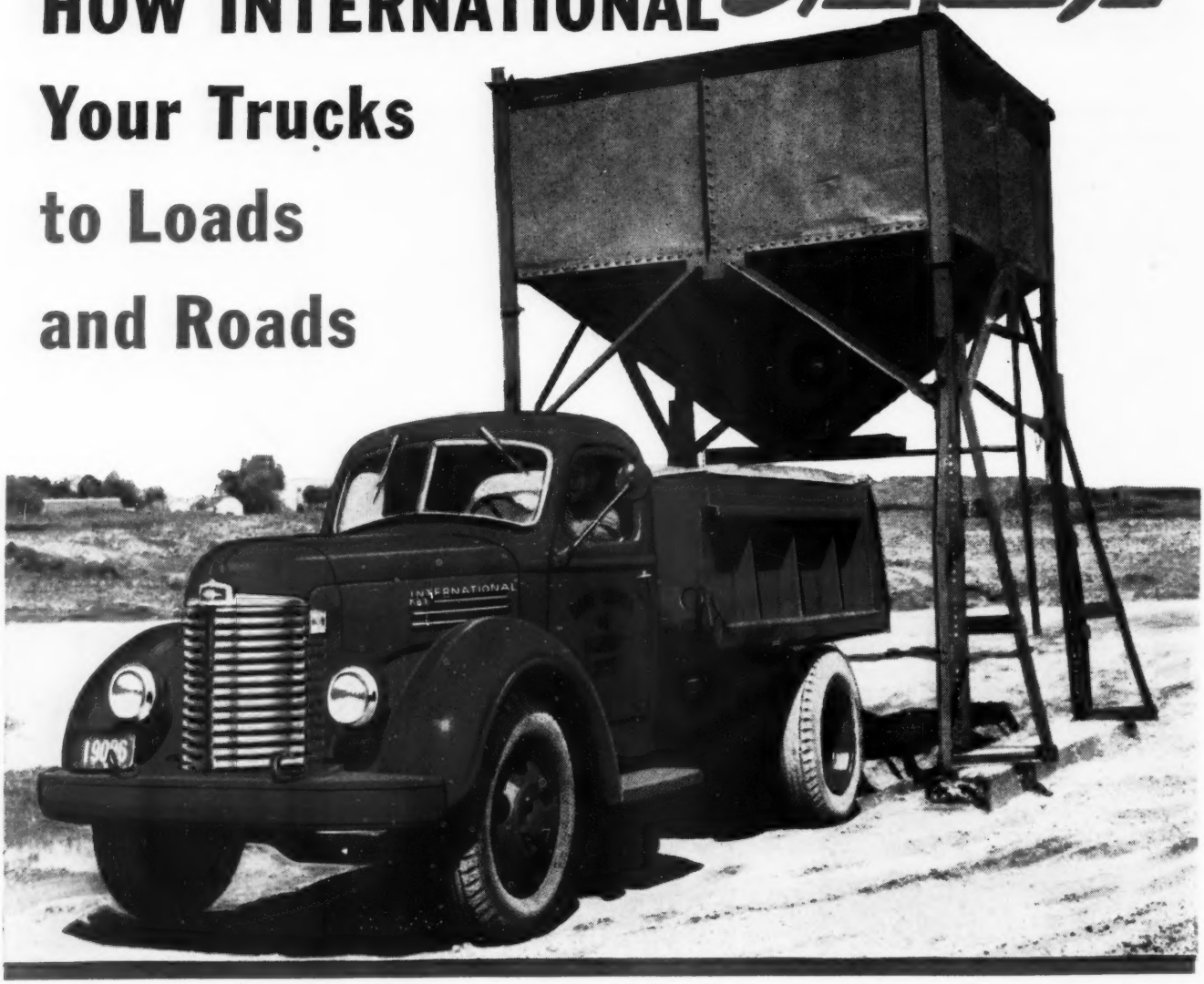
BLAW-KNOX DIVISION of Blaw-Knox Company

2086 Farmers Bank Bldg., Pittsburgh 22, Pa.

Birmingham • Chicago • New York • Philadelphia • Washington

HOW INTERNATIONAL *Specializes*

Your Trucks to Loads and Roads



This first step is an analysis of your hauling problem by your International Dealer or Branch.

This analysis includes type of load; method of loading; terrain and grades; and length of hauls.

The amount of payload practicable for your trucks then is determined by the exclusive International Truck Point Rating System.

Your Internationals then are *specialized*—engine power, transmissions, axle ratios and other units and attachments—to fit your trucks to your jobs.

What does this *specialization* add up to?

1. Ability to do *your* hauling jobs right. 2. Dependability. 3. Economical operation. 4. Low maintenance. 5. Long truck life.

The International Truck Line is the most complete line built. It includes 22 basic models that *specialize* into more than 1,000 different types of trucks. Gross weight ratings are from 4,400 to 90,000 pounds.

For details of International Truck *specialization*, and analysis of your jobs by the International Point Rating System, consult your International Dealer or Branch.

Motor Truck Division
INTERNATIONAL HARVESTER COMPANY
180 North Michigan Avenue Chicago 1, Illinois

Tune in James Melton on "Harvest of Stars." CBS Wednesday Night.

INTERNATIONAL

INTERNATIONAL *Trucks*

672

CONCRETE CONDITION SURVEY —(42-p. booklet) Reports results of inspection of structures built with Incor high-early-strength portland cement concrete and in service for periods up to 20 years. Results cover wide range of concrete work and exposure conditions and are offered as a cross-section of Incor performance.—**Lone Star Cement Corp., 342 Madison Ave., New York 17, N. Y.**

673

CONCRETE CONSTRUCTION ACCESSORIES — (52-p. booklet.) Covers wall form ties and clamps for ordinary foundations, for engineering structures and for watertight walls and architectural concrete. Other subjects treated are: form hangers, beam clamps and saddles, coil tie hangers, wire beam saddles and various other accessories for reinforcing steel in structures and in highways, the latter including dowel bar supports and individual dowel chairs. — **Superior Concrete Accessories, Inc., 4110 Wrightwood Ave., Chicago 39, Ill.**

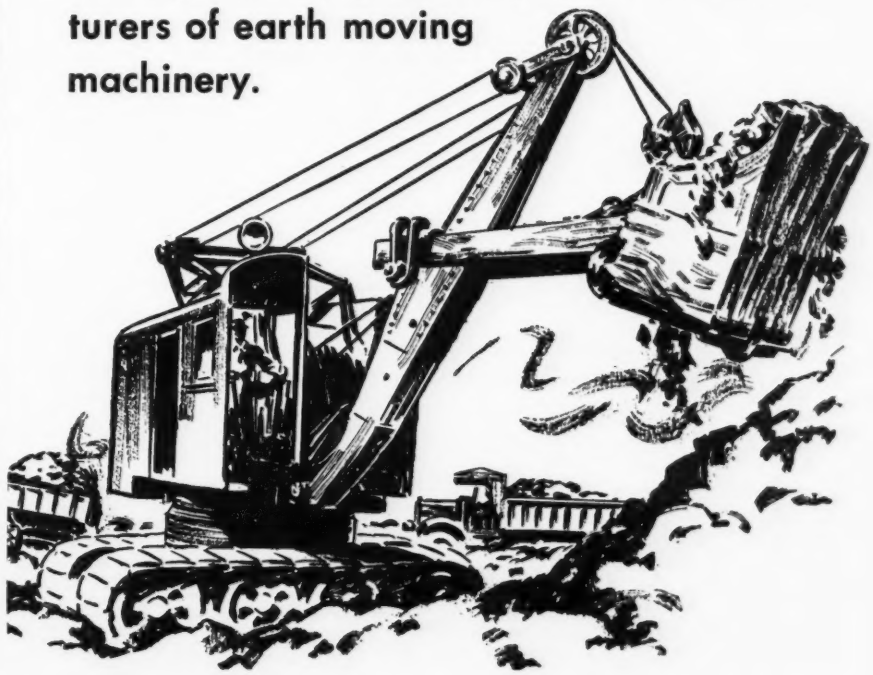
PILE HAMMERS and EXTRACTORS

Now available in a complete, standardized line of ten double-acting hammers, five single-acting hammers and two double-acting extractors. Write us for free descriptive Bulletins 55 and 57.

McKIERNAN-TERRY CORPORATION
Manufacturing Engineers
14 Park Row New York 7, N. Y.

EASY TO WEAR-IN!

J-M INDUSTRIAL FRICTION MATERIALS wear well from the start . . . are specified as original equipment by most manufacturers of earth moving machinery.



HARD TO WEAR-OUT!

J-M INDUSTRIAL FRICTION MATERIALS wear slowly and evenly...are preferred by operators who keep maintenance costs low.

• J-M says "stop" and "go" to more tonnage than any other friction materials.

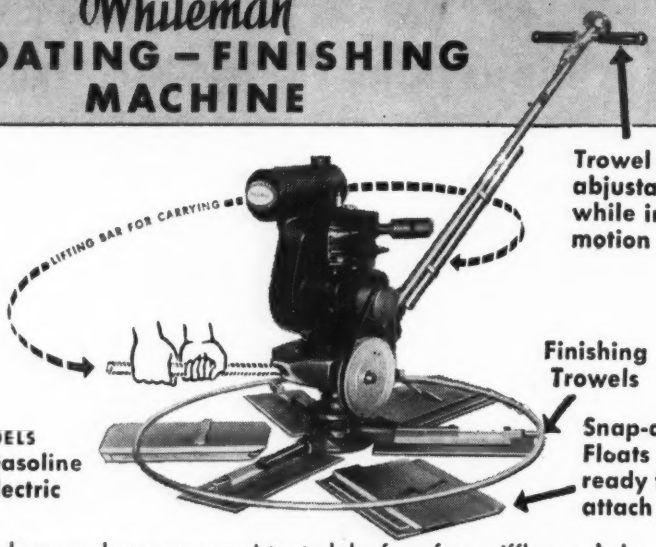
Replace with J-M Industrial Friction Materials and get better braking performance always. You're sure of long service, high braking efficiency and economical operation. Exceptionally durable, mechanically strong, J-M Friction Materials withstand faster speeds, heavier loads, harder shocks and higher temperatures. See your J-M Friction Material distributor or write Johns-Manville, Box 290, New York 16, N. Y.

Johns-Manville
INDUSTRIAL FRICTION MATERIALS
No. 1 With Leading Manufacturers

The mechanical trowel with exclusive patented features

Whiteman

FLOATING – FINISHING MACHINE



MODELS
"JG"– Gasoline
"JE"– Electric

Produces a dense wear-resistant slab, free from riffles and depressions. FLOATING is done with the new "Snap-on" flat float trowels . . . attached or removed in a few seconds. FINISHING is done with the tool steel trowels. Exclusive trowel pitch control. Wt. 105 lbs. Diam. 35".

Write for full details of this and other Whiteman Concrete Equipment.

Whiteman CONCRETE EQUIPMENT

WHITEMAN MFG. CO.

3249 Casitas Ave., Los Angeles 26, California

STEEL CONSTRUCTION

•

TERRY

Steel Contractors

INCORPORATED

BUILDINGS BRIDGES
TOWERS TANKS

STEEL FABRICATORS
ERECTORS

•

your inquiries will warrant our prompt attention

103 PARK AVENUE
NEW YORK 17, N. Y.

MUrray Hill 5-0166-0167-0168

BELIEVE IT OR NOT— THESE FORMS MAKE MONEY

The simple wedge clamp illustrated above holds forms together, as well as the ties between forms. This eliminates the use of nails, spreaders or band irons, and requires the use of only one waler. The forms last 50 to 100 reuses without repair. Symons Forms can be rented with purchase option or you may purchase the hardware with blueprints to make your own forms. WRITE TODAY for our big free booklet which completely describes the Symons forming system and accessories.

SYMONS CLAMP & MFG. CO.

4255 DIVERSEY AVE.

CHICAGO 39, ILLINOIS

(For copies of bulletins listed, use coupon, p. 120.)

674

SAFETY GRATINGS—(12-p. pamphlet). Describes line of safety gratings for industrial and commercial use, including also treads and steel trough stairs and other items of light steel work. Describes how gratings are made and flexibility of design to suit span and load conditions. Tabulations cover safe distributed loads and specifications.—**Dominion Bridge Co., Ltd., Lachine, Que., Canada.**

675

BULLDOZERS AND SNOWPLOWS—(22-p. catalog and price list). Dozers are built to fit without alteration, non-current models of Caterpillar tractors. Straight blade dozers feature double beveled reversible cutting edges. Snowplows include V-type and reversible blades and one-way plows for motor graders and trucks.—**Balderson Mfg. Co., Wanego, Kansas.**

676

AIR SANITATION — Engineering and application data book outlines operation of air recovery equipment used in conversion of stale, vitiated, or contaminated air to its original freshness, either to conserve it for re-use or to correct exhaust and intake odor nuisances. Equipment consists of hollow-walled cylindrical canisters containing specially processed, activated carbon and manifold or supporting plate in which canisters are secured.—**W. B. Connor Engineering Corp., 111 East 32 Street, New York 16, N. Y.**

677

OPEN STEEL FLOORING—Catalogs describe "Supergrate" and "Superweld," companion open steel floor gratings. Supergrate is fabricated to order and is a riveted type of grating. Superweld is pressure-welded and offers an accurately dimensioned, one-piece flooring with a smooth, non-slip surface. Table of safe loads is a useful feature of the catalogs.—**Supergrate Open Steel Flooring Co., 730 East 59th Street, Los Angeles 1, Calif.**

678

HEAVY DUTY TRAILERS — (2-p. folder). Illustrations and specifications for single-axle and tandem-axle tilt trailers. Points out special features for transporting heavy construction equipment such as power shovels, tractors, mixers, etc.—**C. R. Jahn Co., 1106 W. 35th St., Chicago 9, Ill.**

679

MANGANESE STEEL CHAINS—28-p. booklet tells of austenitic manganese steel and its characteristics and shows advantages of manganese steel chain for tough jobs involving shock and abrasion such as for elevators, conveyors, dredging and dragline.—**American Manganese Steel Division of American Brake Shoe Co., Chicago Heights, Ill.**

680

BOTTOM-DUMP WAGON—(Leaflet). Heavy-duty earthmoving Euclid rubber-tired bottom-dump unit has 25-cu. yd. capacity struck measure, and is powered by 275-hp. diesel engine. Top speed is 24.1 mph. Tire sizes are 14.00x24 front and 27.00x33 on drive and trailer wheels.—**Euclid Road Machinery Co., Cleveland 17, Ohio.**

681

TRAILER WITH LOADING RAMP—In this bulletin manufacturer calls attention to an entirely new principle in trailer construction which speeds up loading or unloading of such types of equipment as tractors, bulldozers, road rollers, trenching machines, etc. They are of 7- and 10-ton capacity.—**Arthur Rehberger & Son, Inc., 320 Ferry St., Newark 5, N. J.**

682

EMPLOYEE TRAINING—(2 booklets) Published under titles "Trained Men" and "College Graduate, Where Now?" to acquaint employees and prospective employees with various training courses available at Peoria, Ill. plant of Caterpillar Tractor Co. Courses train men for machinist, foundryman and pattern maker and for such work as machine shop, welding, and sheet metal. Also included are business training and engineer training courses in cooperation with colleges. — **Caterpillar Tractor Co., Peoria 8, Ill.**

683

SAND AND STONE HANDLING EQUIPMENT — (64-p. booklet) For handling and preparing sand, gravel and stone. Subject matter covers all types of elevators and conveyors, vibrating and revolving screens, washing and dewatering units. Also mobile shovels, cranes, draglines, portable conveyors, loading spouts and gates, chain drives, speed reducers, and variable speed changers. Intended for information of sand, gravel and stone plant operators is Book No. 2126.—**Link-Belt Co., 307 No. Michigan Ave., Chicago 1, Ill.**

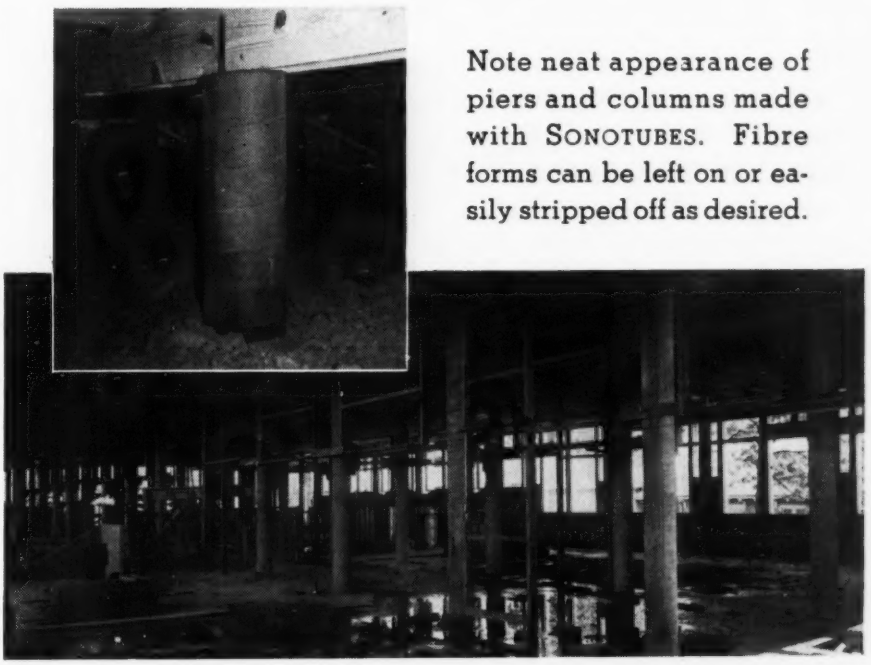
SAVE 4 WAYS

With Sonotubes

PAT. APP. FOR.

CONCRETE PIER AND COLUMN FORMS FOR ONE-TIME USE

1. **SAVE TIME** SONOTUBES can be "tailored" to requirements. Cut easier than wood.
2. **SAVE LABOR** SONOTUBES are light in weight, easy to handle, save many hours of labor.
3. **SAVE LUMBER** SONOTUBES require a minimum of bracing, cut down use of lumber.
4. **SAVE MONEY** SONOTUBES are less expensive than other tubing providing similar results.



Note neat appearance of piers and columns made with SONOTUBES. Fibre forms can be left on or easily stripped off as desired.

IMMEDIATE DELIVERY ON 6 STANDARD SIZES

INSIDE DIAMETER					
8"	9"	10"	11¼"	12"	13½"
SQUARE INCHES					
50.26	64	78.54	100	113.1	144

Cut to length right on the job

WRITE FOR DELIVERED PRICES

SONOCO PRODUCTS COMPANY

BRANTFORD ONT. HARTSVILLE S. C. MYSTIC CONN.

sonoco — SERVE THE WORLD — PAPER CARRIERS

SAVE MANPOWER, SAVE TIME

with COFFING HOISTS

The HOIST-JACK Lifts, Pulls or S-t-r-e-t-c-h-e-s

The "MIGHTY-MIDGET" PULLER Lifts or Pulls a 500 lb. Load!

Save money with the right hoist for the right job, selected from the complete Coffing line that covers industry's needs on ALL hoist work.

Brand new is the Coffing Hoist-Jack. Use it as a hoist, as a jack or as a load binder. Operates with or without stand; 2,000 lb. capacity model is shown —4,000 lb. model has double chain and double stand. Both safety tested to 100% overload.

Equally versatile is the "Mighty-Midget" Puller; small in size but mighty in power for pulling or lifting—weighs only 6½ lbs., yet handles a 500 lb. load. Two way handle (with "safety-load" feature) serves as lever or high speed crank.

WRITE for Illustrated Bulletins on any Hoist shown here.

COFFING HOIST COMPANY
Danville, Illinois

Look to COFFING for the Hoist You Need

Coffing "Safety-Pull" Ratchet Lever Hoists meet industry's needs for easy operation, safety, rugged construction. Nine models to handle from ¾ ton to 15 tons.

The Coffing "QUIK-LIFT" Electric Hoist is equipped with heavy duty motor. Hook or trolley suspension. Pendant control so accurate that loads may be raised or lowered by fractions of an inch. Seventeen models—500 to 4,000 lbs. capacity.

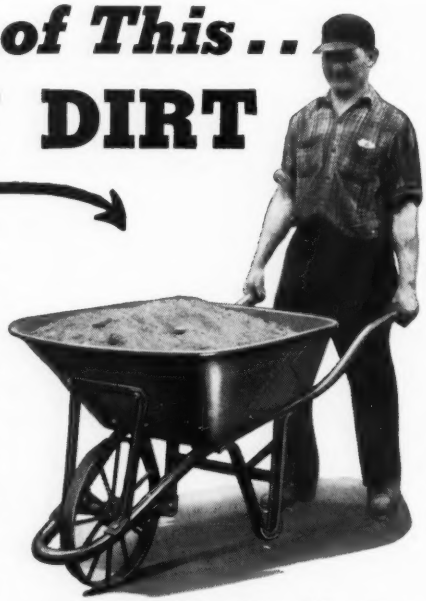
SAFETY-PULL RATCHET LEVER-HOIST

QUIK-LIFT ELECTRIC HOIST

Get a Load of This . .

It's PAY DIRT

Whether in the Klondike or on one of your everyday material handling jobs . . . every load is "PAY DIRT" in a Sterling Wheelbarrow. This efficient, low cost method of material transport earns extra profits. Balanced design relieves the operator of 80% of the load . . . assures faster, easier wheeling of heavy loads. Sturdy, all-steel construction prolongs the life of the barrow. Try a Sterling Wheelbarrow for your next material handling job. You'll find it pays off in profits.



Sterling Tubular Framed Barrow — all-welded, no rivets, lapped at corners. Steel reinforcing rod around top edge.

STERLING WHEELBARROW CO., Milwaukee 14, Wis.

Look for this Mark of STERLING Quality

Sterling WHEELBARROWS

684

FLEXIBLE COUPLINGS — (32-p. catalog). Deals with Morse Morflex flexible coupling line. Describes development of couplings, their construction and working principle. Capacities range from 0.06 to 13.80 hp. rating per 100 rpm. Radial coupling is designed to absorb heavy torque loads, shock and high-frequency load reversals.—**Morse Chain Co., 7601 Central Ave., Detroit 8, Mich.**

685

DUAL-FUEL ATTACHMENT FOR DIESEL ENGINE—(4-p. pamphlet) Emphasizes versatility of engine when attachment is added, and points up economic operation of entire unit when utilizing natural gas. Tells how conversion is readily made from diesel to gas operation.—**Caterpillar Tractor Co., Peoria 8, Ill.**

686

ABRASION RESISTING STEEL PLATES—(2-p. bulletin). Describes tough and comparatively low-priced steel to resist abrasion and wear. Typical applications are listed including chutes, mixer liners and blades, buckets for conveyors, road scraper blades, clamshell bucket lips and dragline equipment. Additional information includes heat treatment and fabrication, and illustrations of uses in different fields.—**Jos. T. Ryerson & Son, Inc., P. O. Box 8000-A, Chicago 80, Ill.**

687

WELDED STEEL TANKS—Beautifully illustrated booklet describes elevated steel tanks which are streamlined welded structures with cylindrical columns and ellipsoidal roofs and bottoms, columns and struts being fabricated from steel plates. Hermetically sealed to keep out air and moisture, and thus prevent inside corrosion. Used to provide gravity water pressure for general service or fire protection.—**Chicago Bridge & Iron Co., 332 South Michigan Ave., Chicago 4, Ill.**

688

CONCRETE CUTTER — (leaflet). Equipped with diamond saw blade, portable machine is mounted on wheels and powered by 6-hp. engine, weighs 395 lb. "Stratedge" machine cuts concrete from depths of from 1 to 3 in. Manufacturer recommends it in operations of tearing up and replacing sections of floor surfaces in buildings. Simple gage controls depth of cut. Blade is water cooled.—**Backlin Products Corp., 461 Washington St., Burlington, Wis.**

(For copies of bulletins listed, use coupon, p. 120.)

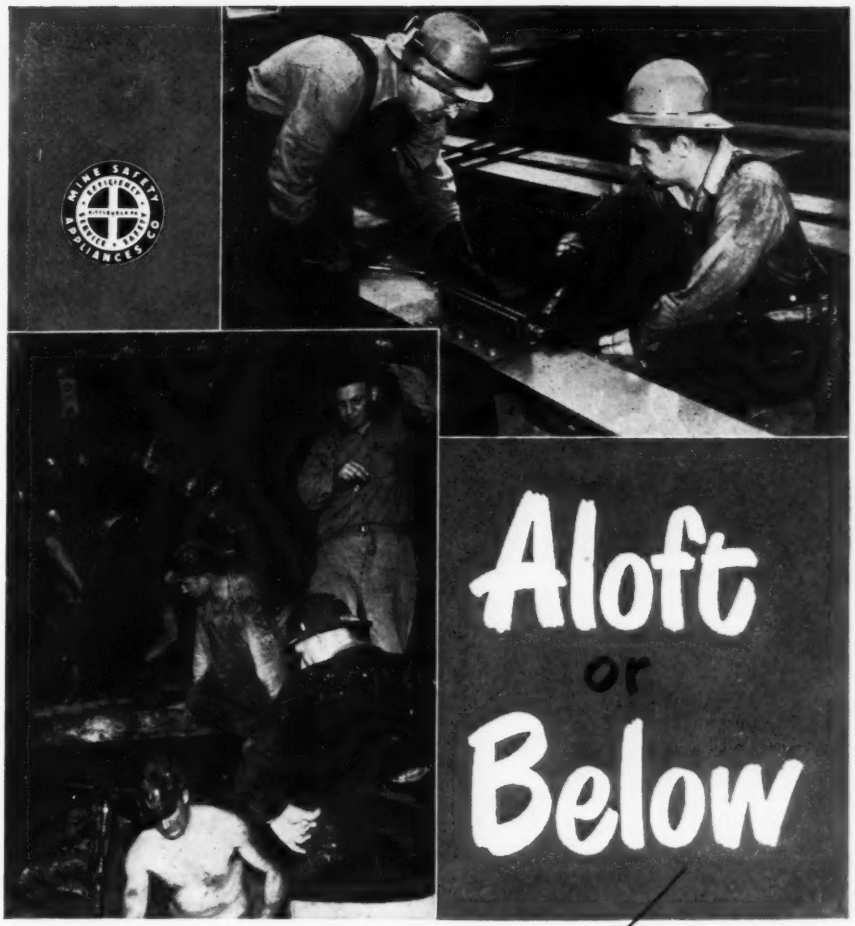
689

METAL MOLDINGS—(68-p. booklet). Various sizes and types of stainless steel, aluminum, bronze and metal-covered wood moldings. Also line of complementary tools including cutters, scribers, seam rollers, mitre boxes, hacksaws, tin snips. Included are snap-on moldings, Tee-sections, angles, channels, flatstrips, oval tops, tubing and slip-in moldings. Also counter-facings, coves, and edgings.—**Loxit Moulding Co., 1217 W. Washington Blvd., Chicago 7, Ill.**

690

HOSE FITTINGS—New catalog section on hose fittings gives recommendations for attaching couplings to hose since proper attachments increase service life of product, and insure maximum safety. There is also a table showing various couplings recommended for different types of hose, and a detailed discussion of coupling threads and their functions. Each fitting is pictured and described, with sizes available listed.—**The B. F. Goodrich Co., Akron, Ohio.**

Shunk
Superior Quality
BLADES
AND CUTTING EDGES
For any make of machine
Motor Graders, Maintainers, Scrapers, Drags, Bulldozers, Backfillers, Wagon Scrapers, Trail Builders, Trail Blazers, Carryalls. Also—
CUTTING EDGES
WEARING BOOTS
BACK SLOPERS
EXTENSION BLADES
MOLDBOARDS
and
SCARIFIER TEETH
50 years of manufacturing blades has developed for you a special steel, milled through our own rolls and forged at the edges to give that extra wearing quality you need.
All widths lengths, and thicknesses, punched ready to fit your machine.
Consult your internationally recognized Blade Specialists. Write for special bulletins, giving type and name of machines you operate—get set for Blades early.
Shunk
Member of A.E.D.
MANUFACTURING COMPANY
Established 1854
BUCYRUS, OHIO.



it's M·S·A

SKULLGARDS

for better Head Safety!

On *every* construction job where the danger of falling objects, obstructions or confined spaces expose heads to injury, M.S.A. Skullgards provide proved, dependable protection!

Used by the hundreds of thousands throughout the construction industry, these favorite work hats interpose the high fracture-resistant strength of high-pressure molded, laminated bakelite between danger and the worker's head—correctly designed with high crown for ample head clearance; shock-absorbing inner head cradle; flexible long-wearing sweatband; self-ventilation coolness.

M.S.A. Skullgards are non-deteriorating from exposure to water, perspiration, grease, or common chemicals, have a high dielectric strength, and are available in all standard or adjustable hat sizes. Write for details on these light-weight, easy to wear work hats—ask for Bulletin DK-13.

MINE SAFETY APPLIANCES COMPANY
Braddock, Thomas and Meade Streets • Pittsburgh 8, Pa.
District Representatives in Principal Cities
In Canada: MINE SAFETY APPLIANCES COMPANY OF CANADA LIMITED, TORONTO
MONTREAL • VANCOUVER • CALGARY • WINNIPEG • NEW GLASGOW, N. S.

HERE ARE HARD DRIVING FACTS ON STEEL SHEETING

Many experienced engineers and contractors know that ARMCO Sheeting helps them do a better job at less cost.

Light weight and a small displacement area make ARMCO Sheeting a fast-driving, cost-cutting tool on either temporary or permanent construction. You'll like the way it saves you time and money.

Both interlocking and flange type ARMCO Sheeting can generally be driven to full penetration before excavation. The corrugated metal design assures ample strength without excess bulk. It means easier handling, faster driving and lower costs.

Another big advantage is that on temporary jobs ARMCO Sheeting can be readily pulled and used over and over again. A convenient hole near the top of the section makes pulling easy.

There is no problem in hauling or storing ARMCO Steel Sheeting. Sections nest together and save space. Interlocking type sheeting is available in gages 12 to 7; flange type in gages 12 to 3. Standard lengths are from 6 to 20 feet in multiples of 2 feet. Write for prices and complete information. Armco Drainage & Metal Products, Inc., 2955 Curtis Street, Middletown, Ohio.

ARMCO

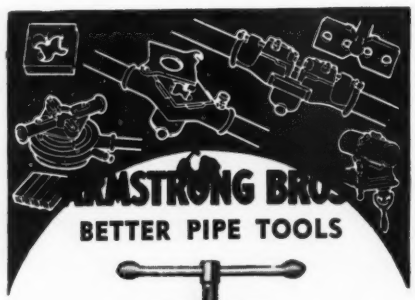
ARMCO STEEL SHEETING

691

SPEEDY SCRAPER—An interesting folder tells all about the Be-Ge hydraulically operated "Speedhaul" scraper, which is full carry with forced roll out ejection. It is claimed that it moves earth fast at low cost. It is designed for use with fast rubber-tired tractors. Finger-tip hydraulic controls instantly regulate the cut, lift, dump and spread operations. Operator has a clear view of the blade and can adjust cutting and spreading depth hydraulically, while a short turning radius makes it ideal for close work.—**Be-Ge Mfg. Co., Gilroy, Calif.**

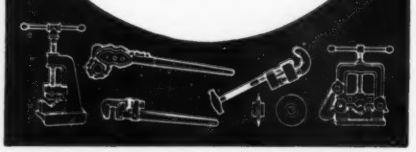
692

POWER SHOVEL—All improvements effected since V-J Day in the Buckeye Model 70 Clipper power shovel are shown in a new bulletin. One feature is an entirely new revolving frame designed for tougher excavating problems and very sturdily made. Entire trench hoe attachment has been redesigned to give greater strength and longer life to all wearing parts—**Findlay Division, Gar Wood Industries, Inc., Findlay, Ohio.**

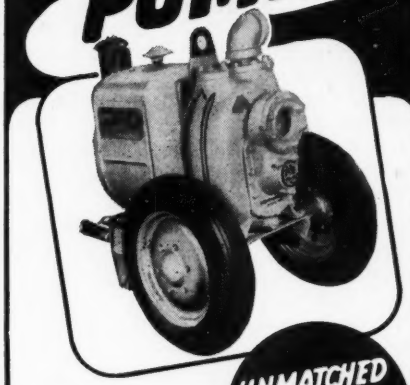


"ARMSTRONG BROS." Pipe Vises are built for lifetime service with *unbreakable* drop forged steel hooks. Other design improvements include: oval handle ends (will not pinch hands), replaceable tool steel jaws with milled teeth, and on sizes 70 and 71, a solid 1-piece jaw that prevents kinking of small pipe. There are always extra quailty features in an "ARMSTRONG BROS." Pipe Tool.

ARMSTRONG BROS. TOOL CO.
5234 W. Armstrong Ave., Chicago 30, U.S.A.
Eastern Whse. and Sales: 199 Lafayette St., New York 12, N. Y.
Pacific Whse. and Sales Office: 1275 Mission St., San Francisco 3, Calif.



MC Dual Prime Centrifugal PUMPS



UNMATCHED PRIMING SPEED

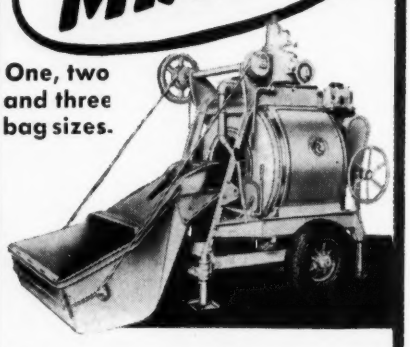
Available on skids, steel wheels or pneumatic tires.

A complete line of sizes from 1½" to 10". Also 3" and 4" Diaphragm Pumps. See the nearest CMC Distributor or write for catalog.

CONSTRUCTION MACHINERY CO'S.
WATERLOO, IOWA

MC Fast Modern Top Performing MIXERS

One, two and three bag sizes.



Fast, compact, efficient—Built with Timken bearings Machined drum tracks—Silent transmission and other plus value features. See the CMC Distributor today—or write for catalog.

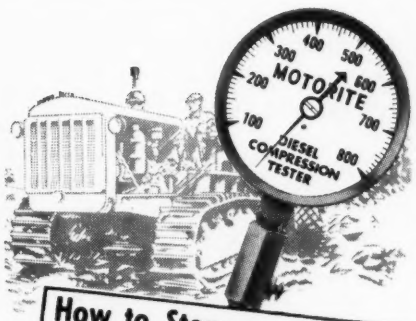
CONSTRUCTION MACHINERY CO'S.
WATERLOO, IOWA

693

STEEL WATER TANK PROTECTION — Functional specification sheet explains cathodic protection for mitigation of rust and corrosion damage in water works, sewage treatment and other submerged or buried metal structures. — **Electro Rust-proofing Corp., 1 Main St., Belleville 9, N. J.**

694

BUILDING UTILITIES UNIT— Booklet tells of a variety of packaged units for house, apartment building, housing or hotel unit construction. Adaptable to single or multi-story buildings of conventional or prefabricated construction, these units include all fixtures for the kitchen and bathroom including hot water heating and storage, central heating unit, main electrical switch and fuse panel, all necessary towel racks, cabinets with electrical fixtures and heating outlets thereto completely piped and wired. Building Utilities Unit reduces construction costs substantially on home units.—**Building Utilities Unit Co., 666 Mission St., San Francisco 5, Calif.**



How to Stop

DIESEL TROUBLES

Before They Start

The compression-ignition principle of Diesel engines makes regular checks of compression of all cylinders vitally important. Maintaining correct compression pays off. It means keeping your Diesels running at peak efficiency. The result is greater operating efficiency, longer engine life, and lower maintenance costs.

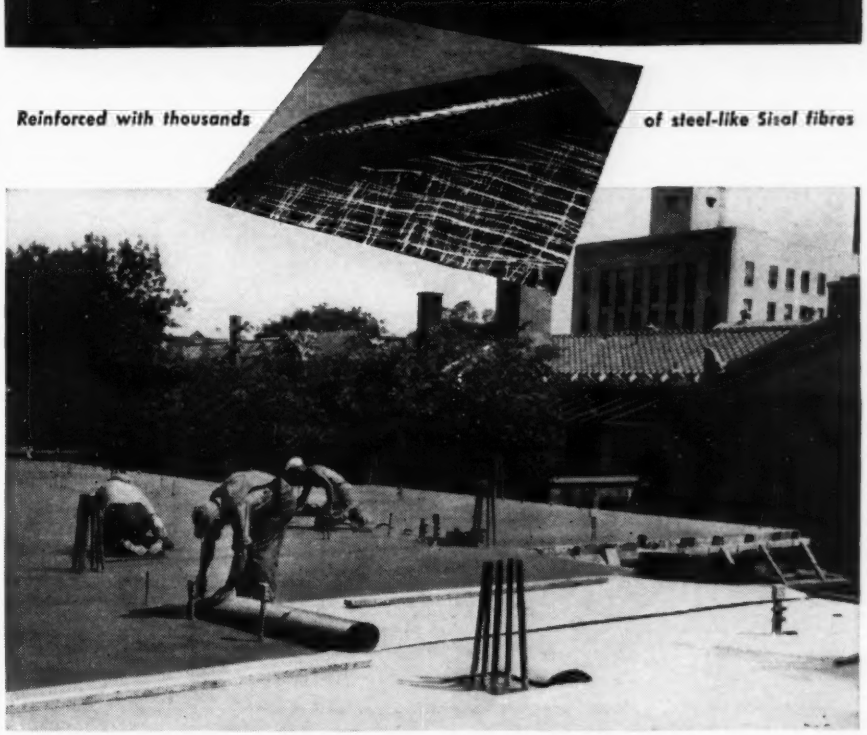
The MOTORITE Diesel Compression Tester simplifies checking compression pressure. It is easily attachable to any make of Diesel by means of an interchangeable adapter which takes place of the fuel injector. In addition to a "universal" adapter which serves more than 50 makes and types of Diesels, we have a complete line of special adapters for practically every commonly-used Diesel.

For full particulars write for Leaflet 605.

ATTENTION Distributors: Diesel equipment and accessory jobbers are invited to write for information about attractive distribution proposition.

BACHARACH INDUSTRIAL INSTRUMENT CO.
7000 Bennett Street · Pittsburgh 8, Pa.

MAXIMUM PROTECTION MINIMUM COST with SISALKRAFT



Reinforced with thousands of steel-like Sisal fibres

SISALKRAFT used for curing and protection of concrete floors of multi-story building

CLEAN and DUST-FREE FLOORS AT REDUCED COST!

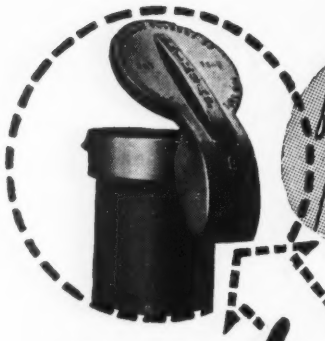
SISALKRAFT is so strong it furnishes positive protection from debris and construction stains, and prevents marring. It also affords dependable frost-protection. It is so light-weight, it can be rolled into place easily and be removed quickly. Economical . . . can be used many times over.

The SISALKRAFT Method of curing and protection is used not only on buildings of concrete construction, but also, in a big way, on concrete highways. This modern method is automatic . . . no watching, no sprinkling, no other covering. The SISALKRAFT Method is a "natural" for you on single-story and multi-story jobs . . . also for driveways, sidewalks and roads. For complete data write Dept. CM.

PROMPT DELIVERY!

The SISALKRAFT Co., 205 WEST WACKER DRIVE, CHICAGO 6, ILL.

Manufacturers of . . .
SISALKRAFT • SISALATION • COPPER ARMORED SISALKRAFT • FIBREEN • SISALTAPE



RAINCAP

New!

THE CAP THAT DOES NOT FORGET TO CLOSE

Completely automatic — the "RAIN-CAP" is counterbalanced to open when the tractor starts and close when it stops. Rust proof—made of cast aluminum—with bronze bushing—can be installed in two minutes. F.O.B. Waterloo, Iowa.

STOPS MOISTURE FROM FALLING INTO TRACTOR EXHAUST

- Immediate delivery
- Liberal Dealer Discount.

No.	O.D. Exhaust	Retail
1	2⅛"	$1.90
2	2⅜"	1.90
3	2⅝"	1.90
5	1⅞"	1.90
55	2"	1.90
5x	1¾"	1.90
6	1½"	1.90
66	1⅜"	1.90
7	2½"	1.90
8	3"	2.50
9	3⅛"	2.50
10	3¼"	2.50
11	3½"	2.75
115	3¾"	3.00
12	4"	3.00
123	4⅛"	3.00
125	4¼"	3.00
14	4½"	3.00

Write Dept. CM.

WATERLOO FOUNDRY CO., WATERLOO, IOWA

RENT A THOMAS HOIST

For Your Building Jobs

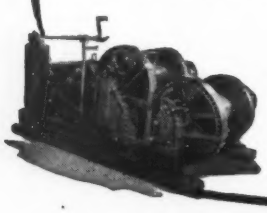
Direct From the Manufacturer

Since 1873, Thomas-built hoists have been designed for dependable, economical service.

NOW AVAILABLE — IN STOCK

The Thomas patented "Band Friction" grips positively, releases easily—ELIMINATES OPERATOR FATIGUE. The Thomas patented "Back-Up" brake requires no power, sets and releases automatically. QUICKLY INTERCHANGEABLE PARTS, and PROMPT, DEPENDABLE SERVICE means Thomas Hoists Keep the Job Going. One, two or three drum hoists up to 100 H.P. gasoline or electric powered.

Write NOW for NEW FOLDER No. 101 showing in detail the trips per hour normally obtainable with the various types of Thomas Hoists that are engineered to fit a particular job.

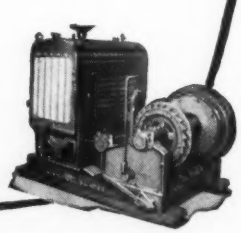


THOMAS HOIST CO.

22 S. HOYNE AVENUE

PHONE SEELEY 0303

CHICAGO 12, ILL.



695

ROOF VENTILATOR—Booklet tells about "Iron Lung" which it is claimed "makes buildings breathe better." It is a roof ventilator engineered for power operation which quickly exhausts large volumes of polluted air from industrial buildings bringing in fresh air to maintain the health and energy of workers. Clear, open throat of "Iron Lung" permits high velocity discharge which exhausts the toxic air as high as 30 ft. above the roof. Cost of installation is said to be low. Three-price units are easy to assemble and install on any roof.—**Powermatic Ventilator Co., 4019 Prospect Ave., Cleveland 3, Ohio.**

696

ELECTRIC PLANT — An entirely new bulletin covering a 700-watt electric plant describes and illustrates this one-cylinder, air-cooled model and contains full engineering specifications. It outlines the many and diverse applications of the 700-watt size which is available in either ac or dc models. Small and compact, this portable Universal electric plant will provide reliable light and power service anywhere. —**Universal Motor Co., 413 Universal Drive, Oshkosh, Wis.**

697

PIPE CONVEYORS—A 39-p. catalog covers Hapman patented pipe conveyors and accessories. Included are engineering drawings of typical systems for coal, sand, lead, chips and sludge handling. Pictures and sketches of drives, vibrator, sludge tanks, trench, pneumatrol and sealed pin chain plus capacity charts illustrate pipe conveyor's adaptability and performance.—**Hapman Conveyors, Inc., 2405-12 W. Nichols Road, Detroit 21, Mich.**

698

CRUSHING AND SCREENING PLANT—Catalog features a 2-unit portable crushing and screening plant. Pictures show the 1-man, 1-engine operation built around the New Holland Model 3030 Double Impeller Breaker. Coupon offers complete details and a showing of "The New Stone Age," sound movie in natural color.—**New Holland Mfg. Co., Mountville, Pa.**

699

SPIRAL CONVEYOR — 48-p. catalog covers application of a spiral conveyor, how to specify, horsepower formulas, etc. All equipment conforms to new industrial standard dimensions.—**The Jeffrey Mfg. Co., Columbus 16, Ohio.**

EQUIPMENT MEN
and Their Companies

Current developments among manufacturers relating to expansion of services, shifts in personnel, and other changes, include the following:

SALES—H. M. Albers has been appointed assistant sales manager of the **Kingston Steel Co.**, Chicago. . . . Three new sales engineers for the **Pacific Car and Foundry Co.**, Renton, Wash., are: **James M. Miller, Jr.**, North Sacramento, Calif.; **Robert J. Sinclair**, Philadelphia, Pa.; and **Wayne Lindgren**, Savannah, Ga. . . . **John Walker** is manager of the off-highway and mining truck sales of **Mack Trucks, Inc.** . . . **A. S. Rairden** is wire rope sales manager for **The Colorado Fuel and Iron Corp.** and **E. L. Klingler**, assistant. . . . **O. W. Bynum** is general sales manager of **Carrier Corp.**, Syracuse, N. Y. . . . **Doswell O. Winton** is regional sales manager for **All-State Welding Alloys Co., Inc.**, White Plains, N. Y. . . . **Robert A. Cooper** is field engineering and sales representative in northern New Jersey for **Liquid Conditioning Corp.**, Linden, N. J. . . .

(Continued on page 158)

GRIFFIN

GRIFFIN

WELLPOINT SYSTEMS

JETTING PUMPS

Distributors

GRIFFIN ENGINEERING CORP.
2016 E. Adams St.
JACKSONVILLE, FLA.

GRIFFIN EQUIPMENT CO., INC.
548 Indiana Street
HAMMOND, INDIANA

GRIFFIN WELLPOINT CORP.
881 EAST 141st ST. • NEW YORK 54, N. Y.
Phones: MElrose 5-7704-5-6

Insurance . . . and YOU

#7 of a series of informative articles on insurance and bonding.

What would it cost to replace your essential business records?

Have you ever stopped to consider what a heavy investment in work and money has gone into your business records—the correspondence files, specifications, engineering data, drawings and blueprints, employee and payroll records, and all the other vast accumulation of facts that are essential to your daily operations?

Estimate the value represented and you'll have some idea of the expense you'd be put to just to restore the indispensable portions of this information, should it be lost, destroyed, or substantially damaged by fire, flood, explosion, or any other cause.

The possibility of a loss is such a serious risk, and would cost you so much money, that it should be covered by insurance. Ideal for the purpose is the Hartford Valuable Papers Insurance Policy which:

1. Covers business records and all papers* used in business activities, against loss due to fire, explosion, windstorm, theft, and any other cause (except misplacement or mysterious disappearance, wear and tear, deterioration, vermin, and acts of war).
   *Currency, stamps, coupons and securities, checks, drafts, notes, or other written evidence of indebtedness or obligation *are not covered* by the policy.
2. Covers such property in your office, in transit to a place of greater security, and in the more secure location. Papers taken off the premises for business purposes are covered up to 10% of the total insurance carried, subject to a limit of $5,000.
3. Guarantees that the Hartford will either replace or reproduce lost or damaged records or papers or pay in cash up to the limits of insurance carried, the *actual costs* of making such replacement. (Unless specifically insured for a higher amount, there is a limit of 5% of the total insurance on any one record or paper, subject to a maximum payment of $5,000.)

Your Hartford agent or your own insurance broker will gladly furnish details of this *low-cost,* broad protection. Send for a sample policy contract.

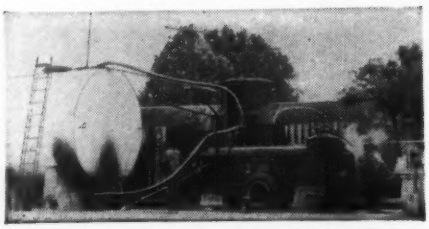
HARTFORD

HARTFORD FIRE INSURANCE COMPANY
HARTFORD ACCIDENT AND INDEMNITY COMPANY
HARTFORD LIVE STOCK INSURANCE COMPANY

Writing practically all forms of insurance except personal life insurance
Hartford 15, Connecticut

THE GRACE

RAPID-FIRE COMBINATION CIRCULATING HEATER

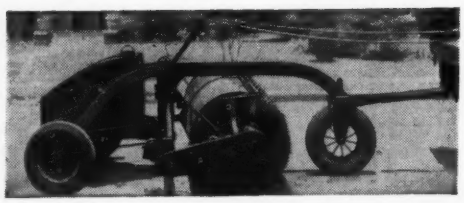


For heating all types of asphaltic material in tank cars or truck tanks . . . Will thaw one car while circulating and loading out another car. With the Rapid Fire Combination heater, two units on one chassis are on the job—designed for pumping heavy asphalt and road oils under ALL conditions.

• • • • • •

GRACE 2-WAY AXLE-DRIVEN SWEEPER

Simple transmission and pivoting mechanism assures easy operation of this multi-service sweeper. Brush, featuring long life bristles and steel shaft to eliminate warping, may be changed to sweep right or left at angles up to 30° in a few seconds.



SEE OUR DISPLAY AT THE ARBA SHOW IN CHICAGO JULY 16-24 . . . BOOTH 3860

W. E. GRACE MFG. CO.

6002 South Lamar Street • Dallas, Texas

MADESCO BLOCKS stand the gaff

wire rope blocks

Madesco Auto Lub HS

Ideal for construction work, the HS is one of a complete line. Service it in off seasons and it requires no further care.

Madesco blocks are designed and built to meet your needs . . . special jobs made to your specifications.

Send for complete catalog

A quarter century of service

MADESCO TACKLE BLOCK COMPANY EASTON, PENNSYLVANIA

(Continued from page 157)

Samuel H. Gifford is sales representative of Wayne Crane division, **American Steel Dredge Co., Inc.,** Fort Wayne, Ind. . . . **Wm. J. Faulkner** has resigned as industrial sales manager of the Allis-Chalmers Tractor division to become vice-president and part owner of **Frantz Tractor Co., Allis-Chalmers'** New York dealer.

A meeting of the midwestern sales representative of the conveyor division of the **A. B. Farquhar Co.** was held in Chicago recently to discuss local problems in materials handling . . . **F. F. Bogardus,** district sales manager for **Roots-Connersville Blower Corp.,** Connersville, Ind., has opened an office in the Plymouth Bldg., Cleveland, Ohio . . . **Link-Belt Co.** has opened a district sales office at 444 Broadway, Albany, **N. Y., with J. Chas. Bullock** as manager . . . **John R. Quinn** is now assistant product manager of the extrusion and tubing division of **Reynolds Metal Co.** at Louisville, Ky. . . . **Economy Pumps, Inc.,** has opened a new sales office at 105 W. Monroe St., Chicago, with **Baldon S. Tucker** as manager . . . **Walter Webb** has been appointed as the Philadelphia, Pa., area sales representative of the **U. S. Stoneware Co.,** Akron, Ohio.

DISTRIBUTORS—Elmer B. Kelly has been appointed district representative on motor graders and rollers for the **Galion Iron Works & Mfg. Co.,** in Indiana, Michigan, and the northern half of Illinois. . . . **E. L. Kessler** and **A. E. Simon,** 1545 Exchange Ave., Oklahoma City, Okla., have been named distributors for **R. G. Le Tourneau, Inc.,** for Oklahoma. . . . **Buchanan Co.,** Kansas City, Mo., has been appointed sales agent for Lima shovels, cranes and draglines in Oklahoma, Kansas and western Missouri.

Economy Pumps, Inc., Hamilton, Ohio, has made **Bruce Hetter** distributor for western Michigan at Grand Rapids . . . **Levinson Steel Sales Co.,** Pittsburgh, Pa., has become a stocking warehouse distributor for **Plastell Products Co.,** Washington, Pa., and **Consolidated Steel Warehouse Co.** is distributor in the Philadelphia area . . . **Watermasters, Inc.,** Houston, Tex., will represent **Belco Industrial Equipment** division in the Southwest . . . **Westchester Wholesale Warehouse, Inc.,** Mamaroneck, N. Y., will distribute **Richkraft** products in the southeastern part of New York state and in Connecticut. **Herrick Co.,** 352 C. Street, South Boston 27, Mass., with branch offices in Burlington, Vt.; Hartford, Conn.; and Auburn, Me., will distribute **Richkraft** products in Massachusetts, Connecticut, Vermont and Maine . . . **All-State Welding Alloys**

Co., Inc., White Plains, N. Y., has appointed distributors for its line of low-temperature welding and brazing alloys and fluxes as follows: **H. M. Parker & Son,** 217 West Colorado Blvd., Glendale, Calif.; **Herrick Co.,** 352 "C" St., So. Boston 27, Mass.; **L. W. Jaeger Ignition Co.,** 2040 Columbus Ave., Springfield 4, Mass.; **Welding Supply Co.,** 65 Van Riper Ave., East Paterson, N. J.; and **Littrell Parts,** 319 E. Sixth St., Medford, Ore.

PERSONALITIES—M. H. Courtenay has been appointed Atlanta, Ga., district manager of **SKF Industries, Inc.** . . . **John F. D. Rohrback** has been elected president of **Raybestos-Manhattan, Inc.,** succeeding **Sumner Simpson,** now chairman of the board and of the finance committee. . . . **Harry Bernard** replaces **W. M. Walworth,** resigned, as chief engineer of **Mack Trucks, Inc.** . . . New vice-presidents of **Cummins Engine Co., Inc.,** Columbus, Ind., are **L. W. Beck, D. J. Cummins** and **W. M. Harrison.** . . . **A. E. Cutter** has been appointed superintendent of **Pittsburgh Plate Glass Co.'s** Pittco store front metal producing plant at Kokomo, Ind., succeeding **C. J. Bristow,** retired. . . . **John H. White, Jr.,** has been appointed vice-president and general manager of the **Rodic Rubber Corp.,** New Brunswick, N. J. . . . **Thomas T. Parker,** for 19 years engineer with the **By-Products Steel Corp.,** a subsidiary of **Lukens Steel Co.,** Coatesville, Pa., is now pressed metal manufacturing engineer with the **Hyster Co.,** Portland, Ore. . . . **E. T. F. Wohlenberg** has been appointed general manager of **Masonite Corp.'s** new properties in Mendocino County, Calif. . . . **Webster B. Todd** has been appointed to the executive committee of **American Wheelabrator & Equipment Corp.,** Mishawaka, Ill. . . . **George M. Hansen** has been added to the trade extension staff of the **West Coast Lumbermen's Association.** . . . **H. V. Huleguard** has resigned as vice-president and general manager of the **Whitcomb Locomotive Co.,** subsidiary of **Baldwin Locomotive Co.,** and will continue to live at Rochelle, Ill.

L. A. Franks is manager of the Boston district office of the **H. K. Porter Co., Inc.** . . . **Howard M. Hubbard** is the new president of **The Hydraulic Press Mfg. Co.,** Mount Gilead, Ohio . . . **Charles S. Weber** has been made advertising manager of **The Thew Shovel Co.,** Lorain, Ohio . . . **W. F. Detwiler,** chairman, has been made honorary chairman of **Allegheny Ludlum Steel Corp.** and **Lester H. Bittner** is now vice-president in charge of purchases . . . **James A. Vincent** is senior field engineer for **R. G. LeTourneau, Inc.,**

(Continued on page 160)

THE *DIXIE* CARRIER keeps water COOL for hours

uses clean *VORTEX CUPS*

Plenty of cool water means plenty more work. The Dixie Portable Water Carrier is specially designed to refresh and invigorate your men on the job. Features include:

- Insulation that keeps water cool for hours
- Stainless steel interior that prevents rust
- Snap-lock lid for easy filling and cleaning
- Recessed faucet and steady stream for quick service
- Lightweight, durable all-metal tank in olive and chrome
- Four gallon capacity

The Dixie Portable Water Carrier* dispenses inexpensive Vortex Cups, which are pleasant to use and leakproof. Clean, disposable Vortex Cups are great preventers of absenteeism caused by colds and other mouth-carried illnesses. Write for booklet on Dixie Portable Water Carrier to Dixie Cup Company, Easton, Pa.

**Also available for flat-bottomed Dixie Cups.*

GREATER YARDAGE! LOWER COST!

WELLMAN *Williams* WELDED BUCKETS

Wellman Buckets cost less to maintain because they are ruggedly built. They deliver bigger payloads because they are properly designed. The superior engineering in Wellman Buckets gives the operator better balance, easier handling, cleaner digging. Wellman pioneered the unique construction that pays off in greater yardage at lower costs. There's a Wellman Bucket for every service.

SEND FOR BULLETIN

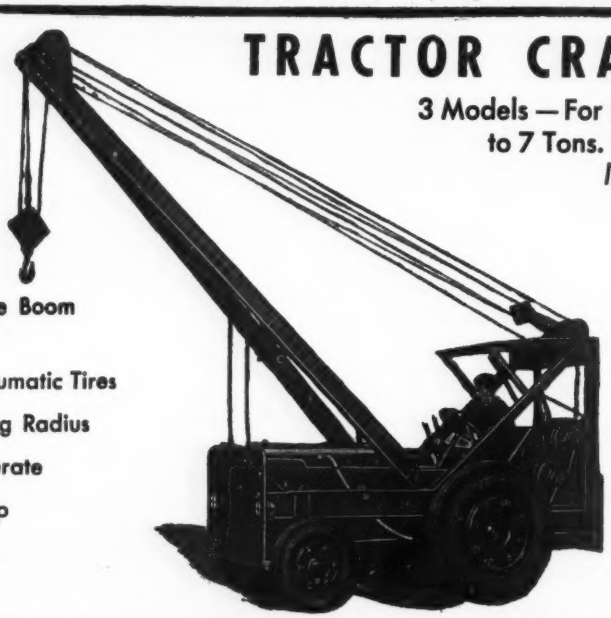
THE WELLMAN ENGINEERING COMPANY
7017 CENTRAL AVENUE CLEVELAND 4, OHIO

MERCER

"The Name that Carries Weight"
MATERIAL HANDLING EQUIPMENT

TRACTOR CRANES

3 Models — For Loads Up to 7 Tons. *Write for literature.*



Special Type Boom Designed
Solid or Pneumatic Tires
Short Turning Radius
Easy to Operate
Low Up-Keep
Clear Vision
Live Boom

MERCER ENGINEERING WORKS, INC.
Plant: Clifton, N. J.
SALES REPRESENTATIVE
MERCER-ROBINSON COMPANY, INC.
30 CHURCH ST., NEW YORK 7, N. Y.

(Continued from page 159)

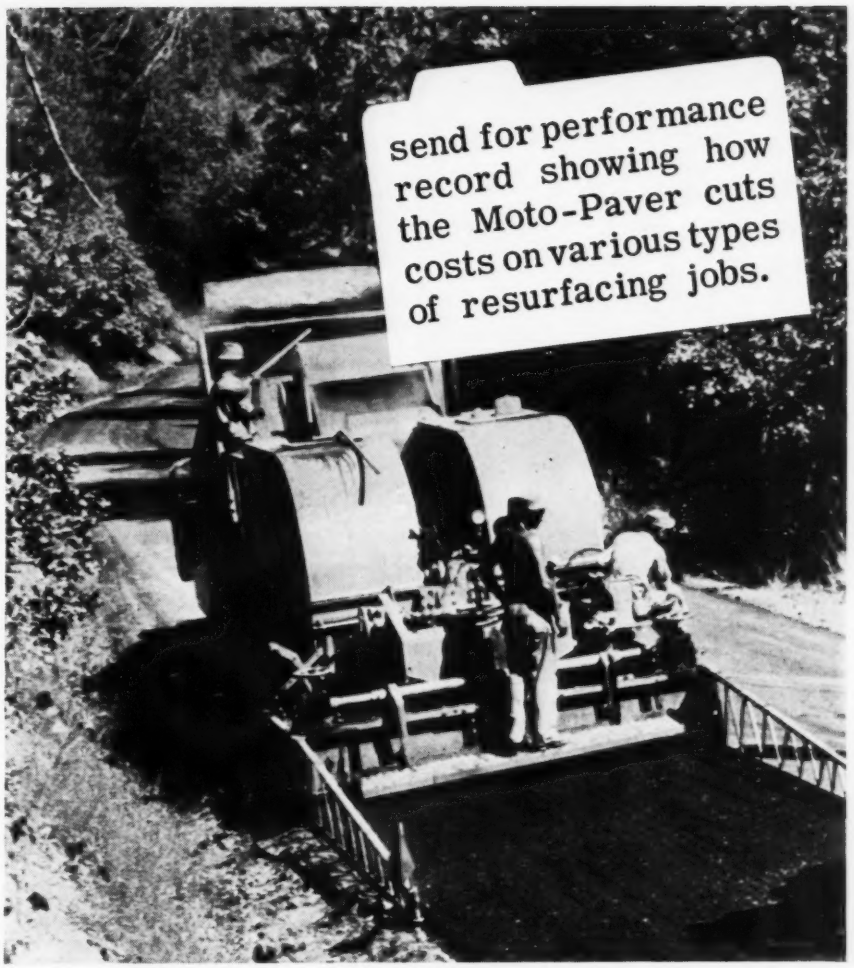
Peoria, Ill. . . . **Howard H. Weber** is chief engineer of the wire and cable department of **U. S. Rubber Co.** and **A. S. Basil,** general sales manager . . . **W. O. Taylor,** retiring manager of the Allis-Chalmers Tractor division export department will be succeeded by **M. J. Proud** . . . **C. F. Larsen** is manager of general service and **C. A. Slifer,** assistant, for **Mack Trucks, Inc.,** Plainfield, N. J. . . . **Miles S. Wright** is superintendent and **Charles E. Stroud,** assistant, of Pittsburgh Plate Glass Co.'s new "Twindow" plant at Creighton, Pa. . . . Appointment of two new district managers has been announced by the **New Holland Manufacturing Co.,** Mountville, Pa., a division of the New Holland Machine Co. **Keith B. Hubbard** is serving the New York State and New England territory, and **A. E. Ainlay** is in charge of the Western district, including California, Oregon, Washington, Montanaa, Wyoming, Utah and Colorado.

MISCELLANY — Johnson Metal Products Co., Erie, Pa., has been merged with the **Detroit Steel Products Co.,** as the Erie division. . . . **Independent Pneumatic Tool Co.** has opened a new administration building at its main works, Aurora, Ill. . . . **Timken Roller Bearing Co.,** Canton, Ohio, in the first four months of this year "plowed back" into the business a total of $1,836,870. . . . The recently-formed **Morton-Gregory Corp.** of Michigan has bought the assets and patents of the **Nelson Steel Welding Corp.,** Lorain, Ohio. . . . **Universal Concrete Pipe Co.,** Rochester, N.Y., has begun the manufacture of small-size sanitary sewer pipe. . . . **Electric Steel Foundry,** Portland, Ore., is expanding its new Danville, Ill., plant. . . . **B. F. Goodrich Co., Akron, Ohio,** reports that twice as many conveyor belts are being produced now as compared with 1940. . . . The name of **The American Rolling Mill Co.,** has been changed to **Armco Steel Corporation.** . . . **The Patent Scaffolding Co., Inc.,** has opened a new branch office and warehouse in Seattle, Wash. . . . **Charles R. D'Olive** has been appointed vice-president and general manager of the newly-created Ingersoll Utility Unit division of **Borg-Warner Corp.**

Sundfelt Equipment Co., Inc., has moved to 220 Hudson St., Seattle 8, Wash. . . . **Brown Instrument Co.,** Philadelphia, Pa., will add over 60 percent to its manufacturing space . . . Purchase of all the common stock of **Blair Veneer Co.,** North Troy, Vt., and its wholly owned subsidiary, **Vermont Plywood,** Hancock, Vt., by the **Owens-Illinois Glass Co.,** was announced jointly by **W. E. Levis,** chairman of Owens-Illinois and **Charles T. Hall,** chairman of

Blair Veneer. . . . Embarking upon a long-range plan of product betterment, members of the **Southern Plywood Manufacturers Association** have moved to institute industry-wide testing of their panel products and named **C. W. Dietterich,** a quality control authority, to effect the program. Addition of a full line aluminum eaves-trough, conductor pipe and fittings has been announced by **New Holland Metals Co.,** Mountville, Pa., a division of the **New Holland Machine Co.** . . . the **K. B. S. Mineral Wool Co.,** Omaha, Neb., has been organized to make insulation . . . **Johnson Metal Products Co.** of Erie, Pa., manufacturers of metal frame windows and door screens, metal frame storm windows and other metal hardware items, has been merged with **Detroit Steel Products Co.** and will continue as the Erie Division of the latter firm.

CORRECTION—At the end of the Miscellany column in last month's issue an editorial mixup included a Caterpillar Tractor Co. item in an R. G. LeTourneau, Inc., notice. The movie mentioned, "Material on the Move," is issued by the Caterpillar Co., and can be obtained through the Peoria office or Caterpillar distributors.



See the *MOTO-PAVER* at the Road Show in Chicago— SPACE 3808

Contractors who bought the first year's output of Moto-Pavers did so largely on our recommendation, backed by our 80 years' experience in building asphalt mixing equipment. Today you can buy a Moto-Paver on its own performance record—on various types of work—in more than a dozen states.

Types of work handled have included sand asphalt, retread, bituminous resurfacing over gravel and old pavement, bituminous stabilization and oil mix on city streets, county roads and state highways, using various types of aggregates and bituminous materials.

Costs varied widely, due to material, weather, traffic and other road conditions. However, a typical cost table shows surprisingly low total mixing and laying costs per ton. Send for report which gives these detailed cost figures on various types of jobs.

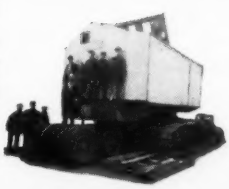
HETHERINGTON & BERNER INC.
735 Kentucky Ave., Indianapolis 7, Ind.

H&B Moto-Paver
THE COMPLETE TRAVELING MIXER AND PAVER

TO COPE WITH LOW HEADROOM PROBLEMS

rely on
ROGERS
GIRDER TYPE TRAILERS

• This trailer is ideal for moving large cranes and shovels long distances at high speed.



ROGERS BROTHERS CORPORATION
220 Orchard Street
ALBION, PA.
EXPERIENCE builds 'em
PERFORMANCE sells 'em

The *versatile* air hose coupling for every construction job. Quick-acting, universal type. Plain design; strong, durable, safe. Malleable iron (cadmium plated) or bronze. Hose ends with shanks; male and female I.P.T. ends. Shanks for hose are long, well corrugated and smoothly finished. Sizes ⅜" to 1".

I.P.T. Female End
Sizes ¼" to 1"

I.P.T. Male End
Sizes ¼" to 1"

Locking heads are same in all sizes of hose and threaded pipe ends. Any two sizes of hose, or hose and pipe, within the coupling's size range, can be quickly coupled without extra fittings of any kind.

Patented Locking Arrangement

Designed for positive safety in services involving excessive twist or vibration. Locking ends are fastened together in such a way that they cannot come apart until locking device is removed.

Stocked by Manufacturers and Jobbers of Mechanical Rubber Goods.

IF IT'S A DIXON PRODUCT

IT'S DEPENDABLE

DIXON
VALVE & COUPLING CO
Main Office and Factory: PHILADELPHIA, PA.
BRANCHES: CHICAGO BIRMINGHAM LOS ANGELES HOUSTON

Advertisers in this issue

Alemite Div., Stewart-Warner Co. 123
Allis-Chalmers Mfg. Co. 52, 53
American Cable Div., American Chain & Cable Co. Inc. .....3rd Cover
American Hoist & Derrick Co. 143
American Road Builders Assn. 39
American Steel & Wire Co. 68
Armco Drainage & Metal Products, Inc....154
Armstrong Bros. Tool Co. 154
Atlas Powder Co. 42

Bacharach Industrial Instrument Co. 155
Barber-Greene Company 20
Baughman Mfg. Co., Inc. 122
Bay City Shovels, Inc. 69
Bell Aircraft Corp. 75
Bethlehem Steel Company 36, 58, 78
Blaw-Knox Div., Blaw-Knox Co. 29, 147
Briggs & Stratton Corp. 132
Broderick & Bascom Rope Co. 40
Bros Boiler & Mfg. Co., Wm. 62
Bucyrus-Erie Company 80

Carlyle Rubber Co., Inc. 138
Caterpillar Tractor Co. 14, 15
Chain Belt Co. 25
Cleaver-Brooks Co. 71
Coffing Hoist Co. 152
Complete Machy. & Equip Co. 163
Construction Machinery Co.'s 154
Construction Methods 56
Cumberland Portland Cement Co. 38
Cummins Engine Co., Inc. 137

Detroit Diesel Engine Div., General Motors Corp. 128
Diamond Chain Co. 74
Disston & Sons Inc., Henry 46
Dixie Cup Co. 159
Dixon Valve & Coupling Co. 162
Drake-Williams-Mount 146

Electric Tamper & Equipment Co. 139
Engineering News-Record 56
Etnyre & Co., E. D. 130
Euclid Road Machinery Co., The 16, 17

Fairbanks, Morse & Co. 131
Farquhar Co., A. B. 135
Foote Co., Inc., The 47, 130
Ford Motor Company (Industrial & Marine Engine Div.) 124

Galion Iron Works & Mfg. Co., The.....125
General Excavator Co., The 55
GMC Truck & Coach Div., General Motors Corp. 77
Goodall Rubber Co. 164
Goodyear Tire & Rubber Co., The 84
Gorman-Rupp Co., The 121
Grace Mfg. Co., W. E. 158
Griffin Wellpoint Co. 157
Gulf Refining Co. 60

Harnischfeger Corporation 34, 35, 66
Hartford Fire Insurance Co. 157
Haynes Products Co. 163
Heil Company, The 82
Heltzel Steel Form & Iron Co. 140
Hetherington & Berner, Inc. 161
Hobbs Manufacturing Co. 126
Hose Accessories Co. 142
Huber Mfg. Co., The 44
Hyster Company 8

Independent Pneumatic Tool Co. 12
Ingersoll-Rand Company 59
Inland Steel Company .....2nd Cover
International Harvester Co.
(Industrial Power Div.) 26, 27
(Motor Truck Div.).....148

Jaeger Machine Co., The 18, 19, 37
Johns-Manville 149
Johnsen Company, The C. S. 30, 31

Koehring Company 31
Kwik-Mix Company 31

LaPlant-Choate Mfg. Co., Inc. 41
Laughlin Co., The Thomas 125
Lehigh Portland Cement Co. 70
LeRoi Company 32
Leschen & Sons Rope Co., A.....133
LeTourneau, Inc., R. G. 22, 23, 28

(Continued on page 164)

How to
design and install
efficient, money-saving
RADIANT HEATING SYSTEMS

Here is detailed, up-to-date information for engineers, architects, and home-builders on the design and installation of efficient radiant heating equipment. This new book covers the subject thoroughly—from a brief outline of physiological reactions to temperature conditions and the basic principles of radiant heat, to step-by-step methods for designing, laying out, and applying radiant heating equipment to all types of building.

RADIANT HEATING

By RICHARD W. SHOEMAKER
Consulting Engineer on Radiant Heating

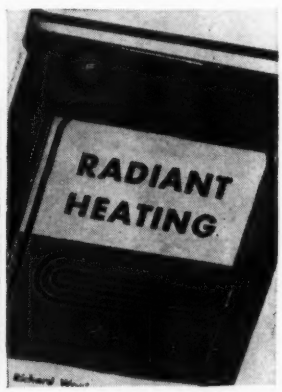
JUST OUT

306 pages
242 illustrations, charts and tables, $4.00

THIS 306-page handbook brings you the authoritative engineering data, and proven techniques . . . the factual information you need to **understand, evaluate,** and **use** radiant heating to best advantage. It gives specific reasons for the rapidly growing popularity of this modern method of heat control and shows you how to apply it efficiently and economically. Complete with illustrations and schematic diagrams, this book describes currently available equipment—shows how to install it in various types of new and existing buildings—and provides concise explanations and formulas to help you design and specify radiant heating systems to fill any requirements.

CONTENTS

1. General Considerations
2. Advantages
3. Location in Buildings
4. Location in Residences
5. The Radiant Heating Plant
6. Control Systems
7. Design
8. Installation
9. Radiant Cooling
10. Method of Design



SEND NO MONEY
SEE IT 10 DAYS FREE

McGraw-Hill Book Co. Inc., 330 W. 42nd St., N. Y. 18

Send me Shoemaker's **RADIANT HEATING** for 10 days' examination on approval. In 10 days I will remit $4.00 plus a few cents postage or return the book postpaid. (Postage paid on cash orders.)

Name .....

Address .....

City and State .....

Company .....

Position CM-6-48

($4.80 in Canada; order from McGraw-Hill Co. of Canada Ltd., 12 Richmond St. E., Toronto 1.)

SEARCHLIGHT SECTION

Classified Advertising

EMPLOYMENT: BUSINESS: **"OPPORTUNITIES"** :EQUIPMENT :USED OR RESALE

SPECIAL OFFERING

25FDT-58W and 43FDT-58W EUCLID Bottom Dump Trucks Available for Immediate Delivery—Subject to Prior Sale.

We Have 30 to 40 of These Current Model 13 cu. yd. EUCLID Earth Haulers. Some Powered with HB-600 Cummins Diesel Engines; Others with General Motors Diesel Engines.

All Trucks Practically New and Equipped with Top Extensions and Cabs. Serial Numbers between 4975 and 5860. Offered at Substantial Price Saving.

Location Within 100 Miles of New York City

Complete Details Gladly Furnished on Request. Inspection Invited.

HUBBARD & FLOYD, INC.

EUCLID Sales and Service

167th St. & Sedgwick Ave., New York 52, N. Y.

Tel.: JErome 7-8960

FOR SALE

3—**Ingersoll Slab Millers,** planer type, all with 20 ft. tables, largest has 42" width by 30" height between housing. Power—20 H.P., 3-P-60-C motor.

7—**Multiple Spindle Heavy Duty Nateo Drills,** largest carries 38 spindle, all with motors, excellent condition.

3—**Sprague Dynameters units,** capacity 135-A, 250V., but with 50% overload, included are indicating Wattmeters, reading in KW and H.P., with rheostats, switch boards, etc.

1—**Sprague Dynameter unit,** capacity 277-A, 250 volts, with 50% overload.

1—**Rockford Horizontal Boring and Reaming Machine.**

1—**Niagara Rotary Shear,** 5" cutter.

1—**Dresses Seven Foot Radial Drill Press.**

1—**Modern External Cylindrical Grinder** capacity 12" diameter by 24" between centers, excellent condition.

3—**Carlton 36" Radial Drills.**

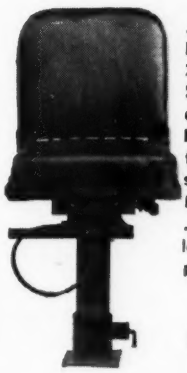
1—**#6 Fellows Gear Shaper** for timing gears and other gears connected with gas engine.

THE SANDERSON CYCLONE DRILL CO.

Orrville, Ohio **Phone 122**

FULL VIEW . . . JOB AHEAD WITH SITTING COMFORT

Living room comfort in a chair designed for Power Shovels, Cranes, Tractors, Graders, etc.



All metal . . . can be raised from 19" to 28" by hand lever. Seat moves forward or backward. Chair bolts down tight. Built for government . . . stands hard service. Now selling at . . . far below the price of production. **$15**

WEIL'S

20 South 2nd St.

Phila. 6, Pa.

PROFESSIONAL SERVICES

LANCASTER, ALLWINE & ROMMEL

Registered Patent Attorneys

Patent Practice before U.S. Patent Office. Validity and Infringement Investigations and Opinions. Booklet and form "Evidence of Conception" forwarded upon request.

Suite 417, 815-15th St., N.W., Washington 5, D. C.

EVERYTHING FOR THE TRACK FROM

SWITCH TO BUMPER

RELAY RAILS

2000 TONS 100# 105#

200 TONS 60#

500 TONS 65#

2500 TONS 70#

MORRISON RAILWAY SUPPLY CORP.

RAND BLDG. BUFFALO 3, N.Y. EMPIRE BLDG. BIRMINGHAM 3, ALA.

WHERE TO BUY

COMPLETE

WELL POINT SYSTEMS WILL DRY UP ANY EXCAVATION

Faster—More Economically

Write For Job Estimate and 32 page Catalog

COMPLETE

MACHINERY & EQUIPMENT CO., Inc.

36-36 11th St., Long Island City, N. Y.

Tel. IRonsides 6-8600

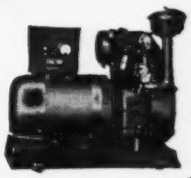
Branch: Third Avenue & Adams St., Gary, Indiana

Telephone: Gary 23083

STERLING LIGHT PLANTS

STERLING QUALITY

SIMPLE
DEPENDABLE
RUGGED
•
WRITE FOR LITERATURE



STERLING MACHINERY CORPORATION

405 Southwest Blvd., Kansas City, Mo.

WIRE ROPE CUTTER

CAPACITY — 1½"

PRICE — $27.50

Write for Bulletin D

Dealers Inquiries Invited

MONTGOMERY

and Company, Inc.

62 MURRAY ST. • NEW YORK 7, N. Y.

Waterproof with Formula No. 640

A clear liquid which penetrates 1" or more into concrete, brick, stucco, etc., seals—holds 1250 lbs. per sq. ft. hydrostatic pressure. Cuts costs: applies quickly—no mixing—no cleanup—no furring—no membranes. Write for technical data—free sample.

HAYNES PRODUCTS CO., OMAHA 3, NEBR.

DRIVE CHAINS FROM STOCK

For all makes Draglines, Shovels, Ditchers, Pavers, and other chain driven construction machinery.

Catalog and chain size comparative chart furnished on request.

TURNER CHAIN & BELTING CO.

2913 Canton St., Dallas 1, Texas

Telephone Riverside 8761

This

WHERE TO BUY

Section

supplements other advertising in this issue with these additional announcements of products and services essential to official and economical operation in the construction industry.

Super-STRONG... Super-SAFE...

"ALLGOOD CORD"

For Manifold and Caisson Service

Goodall's finest large size air hose . . . especially designed for jumbos, caissons and other heavy-duty applications where reliability and safety are of prime importance. Built to stay *on the job longer* by withstanding continuous abrasive wear and damage from falling rock, tools, etc. KINK-PROOF CONSTRUCTION assures a steady flow of air.

"Allgood Cord" is a "Standard of Quality" product . . . a designation warranted by years of outstanding service in the construction field. Made in 1½" to 4" sizes, in maximum lengths of 50 feet.

Contact Our Nearest Branch for Details and Prices.

GOODALL RUBBER CO., INC.

THE GOODALL-WHITEHEAD COMPANIES

MILLS *and* EXPORT DIVISION, TRENTON, N. J.—ESTABLISHED 1870

Branches: Philadelphia • New York • Boston • Pittsburgh • Chicago • St. Paul • Los Angeles San Francisco • Seattle • Salt Lake City • Houston • Distributors in Other Principal Cities

Advertisers Index

(Continued from page 162)

Lima Shovel & Crane Div., Lima-Hamilton Corp. 127
Lincoln Electric Company 83
Link-Belt Speeder Corp. 73
Lion Oil Company 24
Lone Star Cement Corp. 5

Mack Trucks, Inc. 13
Madesco Tackle Block Co. 158
McCaffrey-Ruddock Tagline Corp. 142
McGraw-Hill Book Co. 162
McKiernan-Terry Corp. 149
Mercer-Robinson Co., Inc. 160
Michigan Power Shovel Co. 76
Mine Safety Appliances Co. 153
Mixer Mfrs. Bureau 64
Mixermobile Distributors, Inc. 145
Montgomery & Co., Inc. 163
Moretrench Corp. 81
Morse Chain Company 51

Northwest Engineering Co. 11

Oliver Corp., The 2, 3
Osgood Co., The 55
Owen Bucket Co., The 138

Paris Mfg. Co. 131
Parsons Company 31
Perfection Steel Body Co., The 136
Pettibone-Mulliken Corp. 65
Porter-Cable Machine Co. 67
Preformed Wire Rope Information Bureau. 63

"Quick-Way" Truck Shovel Co. 49

R.P.B. Corporation 143
Rehberger & Son, Inc., Arthur 57
Reo Motors, Inc. 54
Rogers Brothers Corp. 161

Schramm, Inc. 117
Shunk Mfg. Co. 153
Sisalkraft Co., The 155
Sonoco Products Co. 151
Southwest Welding & Mfg. Co. 9
Standard Oil Co. of California 129
Standard Oil Co. (Indiana) 33
Standard Steel Works 61
Sterling Machinery Corp. 163
Sterling Wheelbarrow Co. 152
Symons Clamp & Mfg. Co. 150

Tampo Manufacturing Co. 10
Templeton, Kenly & Co. 134
Terry Steel Contractors, Inc. 150
Texas Company 6, 7
Thermoid Company 21
Thew Shovel Co., The 43
Thomas Hoist Co. 156
Timken Roller Bearing Co., The ..... 4th Cover
Truck Mixer Mfrs. Bureau 72
Turner Chain & Belting Co. 163

United States Steel Corp., Subsidiaries .. 68, 119
Universal Atlas Cement Co. 119
Universal Engineering Corp. 79

Viber Company 134
Vickers, Inc. 141
Vulcan Iron Works 120

Waterloo Foundry Co. 156
Well Equipment Mfg. Corp. 146
Wellman Engineering Co., The 160
Westinghouse Electric Corp. 45
White Mfg. Co. 142
Whiteman Mfg. Co. 150
Wickwire Spencer Steel Div., Colorado Fuel & Iron Corp. 50
Wooldridge Mfg. Co. 48
Worthington Pump & Machy Corp. 144

■

PROFESSIONAL SERVICES 163

■

SEARCHLIGHT SECTION

(Classified Advertising)

Equipment
(Used or Surplus New)
For Sale 163

dex

.....127
..... 83
..... 73
..... 24
..... 5

..... 13
.....158
.....142
.....162
.....149
.....160
..... 76
.....153
..... 64
.....145
.....163
..... 81
..... 51

..... 11

.....2, 3
..... 55
.....138

.....131
..... 31
.....136
..... 65
..... 67
reau. 63

..... 49

.....143
..... 57
..... 54
.....161

.....117
.....153
.....155
.....151
..... 9
.....129
..... 33
..... 61
.....163
.....152
.....150

..... 10
....134
....150
....6, 7
..... 21
..... 43
....156
h Cover
..... 72
....163

68, 119
....119
..... 79

....134
....141
....120

....156
....146
....160
..... 45
....142
....150

..... 50
..... 48
....144

....163

....163

In Galveston Bay, huge rotary drilling rigs bore nine thousand feet under the sea for oil. Long strings of pipe put tremendous shock loads on wire rope. TRU-LAY Preformed stands up extremely well even under such treatment.

Breaking up hard-packed earth is the first step in grading for water drainage in Nebraska. These earth-breaking machines put constant gruelling strains on the wire rope. Here again, TRU-LAY Preformed gives longer, lower cost service.

ALL AROUND AMERICA

Hoisting a completely loaded box car onto a Seatrain for over-water journey from Edgewater, N. J., to Texas City. TRU-LAY Preformed is hard at work every day on thousands of huge overhead traveling cranes like these—giving good service.

Far down below ground in West Virginia's soft coal fields, under-cutting machines claw at the walls of coal. Here wire rope is expendable. TRU-LAY Preformed of correct construction adds many extra hours of service—lowers over-all costs.

ACCO

Wilkes-Barre, Pa., Atlanta, Chicago, Denver, Houston, Los Angeles, New York, Philadelphia, Pittsburgh, Portland, San Francisco, Tacoma, Seattle, Bridgeport, Conn.

AMERICAN CABLE DIVISION
AMERICAN CHAIN & CABLE

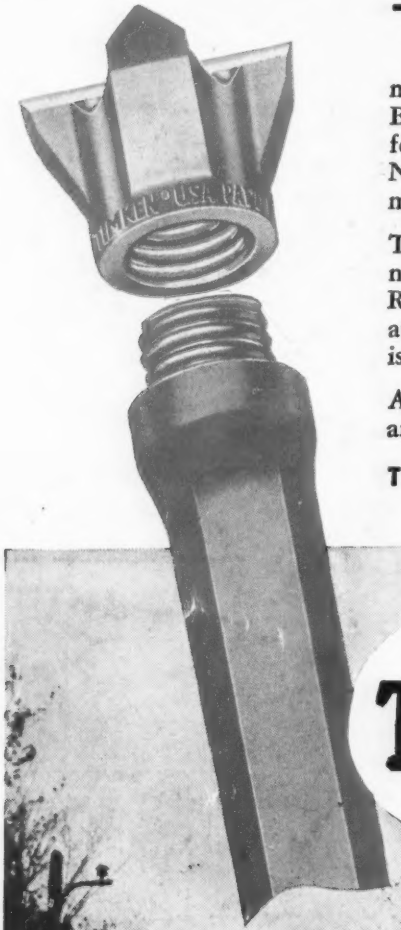
TRADE MARK

In Business for Your Safety

Tru-Lay *Preformed* **Wire Rope**

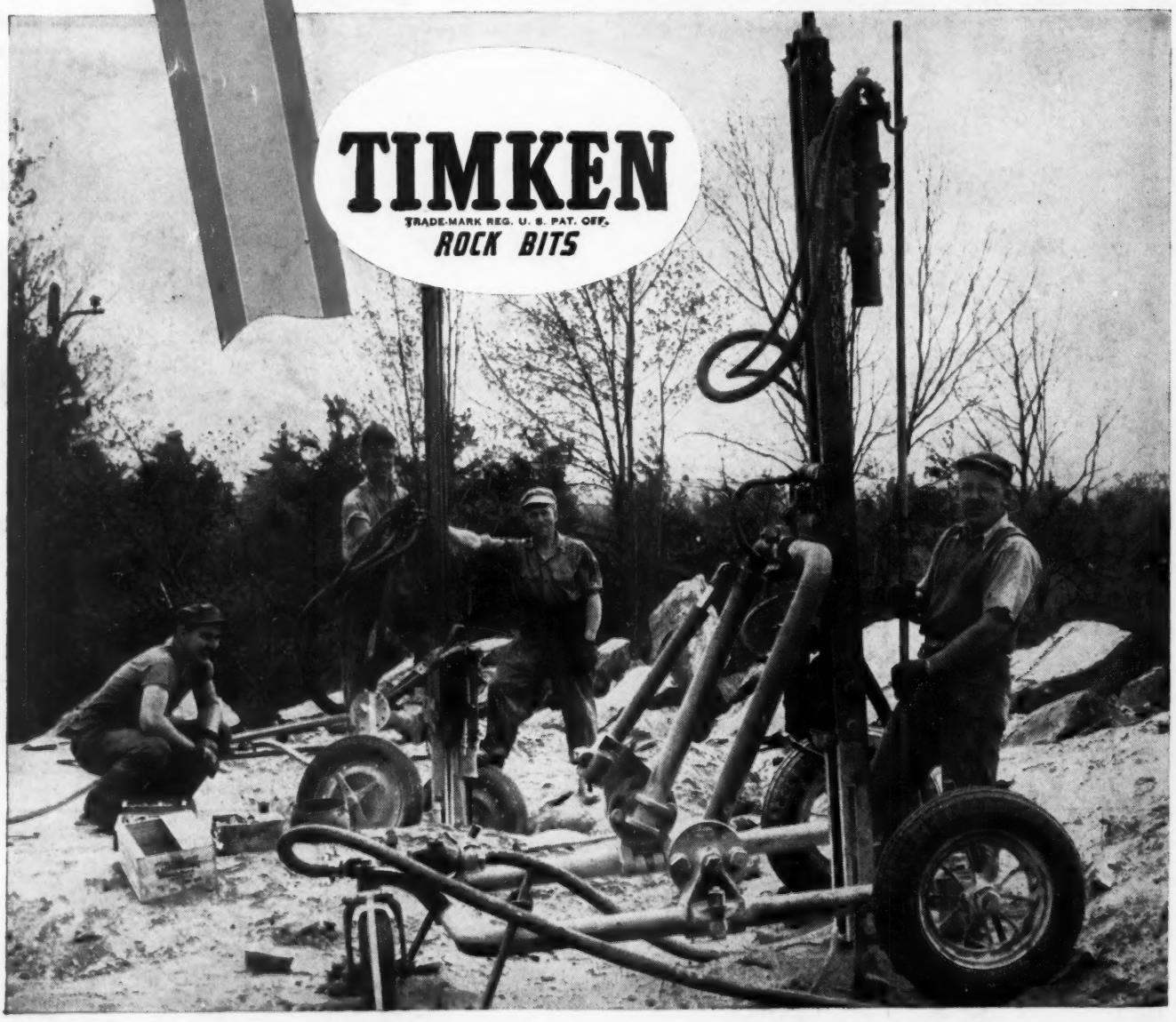
"We have used Timken® Bits for a number of years and we are very much satisfied with them"

—says R. G. Watkins & Son, Inc.



R. G. Watkins & Son, Inc., Amesbury, Massachusetts, has enjoyed many years of successful operation as a general contractor in the New England area, hence is in a position to evaluate authoritatively the performance of construction equipment of all kinds — including rock bits. Nothing we might add to the statement quoted above, therefore, could make it any stronger.

The photographs reproduced here show rock drilling operations in connection with the construction of a new scenic highway being built by R. G. Watkins, Inc., for the State of New Hampshire, primarily for the attraction of tourists. On the rock removal part of the job the contractor is using 5 pneumatic hammers, 3 wagon-drills and 3,315 ft. compressors.

Are you paying more than you should for rock drilling? You are if you are not using Timken Rock Bits. It will pay you to investigate now.

THE TIMKEN ROLLER BEARING COMPANY, CANTON 6, OHIO
CABLE ADDRESS "TIMROSCO"